Ecological Assessment of mounded land to the east of Padnall Lake

July 2020

For:

BeFirst

(Working on behalf of Barking and Dagenham)
Regeneration and Economic Development
9th Floor Maritime House,
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Executive Summary

- This report details an ecological assessment of mounded land to the east of Padnall Lake which lies at the southern edge of the Marks Gate Estate aside the A12 at national grid reference TQ476891 in the London Borough of Barking and Dagenham.
- An issue has arisen with the site allocation and the proposed Site of Importance for Nature Conservation (SINC), Padnall Lake. A report produced by the author for the London Borough of Barking and Dagenham in 2017 identified the lake and its surrounds as a potential SINC. BeFirst wish to amend the Regulation 19 plan so it will not preclude development along the strip of land adjacent to Eastern Avenue (the A12).
- Denis J Vickers (Consultant Ecologist) was commissioned to carry out an ecological assessment and report to set out the facts to inform BeFirst.
- The site comprises two mounds of land lying east of Padnall Lake. Mound 1 is the
 greatest in area; and Mound 2 (which is adjacent to the lake) is significantly
 smaller. Both mounds are covered in semi-improved neutral grassland with
 interspersed tall herbs.
- The area of open land which is lies immediately to the north of the A12 includes
 the mounds at its western extremity (east of Padnall Lake). This area will possibly
 accommodate more than 200 housing units should the plans be realised.
- This ecological assessment aims to: highlight evidence of any significant loss of nature conservation value if the mounded land to the east of the lake is not included within Padnall Lake SINC and as a result is developed in the future; identify protected and priority species and habitats, and invasive species, on and adjacent to the site which may act to constrain development; and where appropriate suggest mitigation and biodiversity enhancements.
- A habitat survey of the site was carried out on the 18th July 2020. Habitats were described following Phase 1 survey methodology (JNCC 2010 & Mayor of London 2002).
- The ecological assessment found no protected or priority species and habitats recorded on the mounds, it does not currently enjoy designation as a SINC and

- any development of these two mounds is likely to have zero impact on nearby SINCs.
- Finally, the assessment concluded that development of the mounds would result in an estimated 48% loss of semi-improved neutral grassland and tall herb vegetation, both of which are attractive habitats for a range of invertebrate specialists. Mitigation in respect of this loss is recommended which would accommodate minor revision of the site boundary: the clearance and seeding with wildflowers and grasses on the mounds to the south of the lake (which are likely to be retained) is advocated. Advice from the London Wildlife Sites Board should be sought regarding the suggested revision of the proposed Padnall Lake SINC boundary.
- Going forward, a range of biodiversity enhancements are suggested for the wider site which hopefully will complement and augment the landscaping initiatives outlined in the *Padnall Lake Marks Gate Estate* document (25th June 2020).

1.0 Introduction

1.1 Background

- 1.1.1 This report details an ecological assessment of mounded land to the east of Padnall Lake which lies at the southern edge of the Marks Gate Estate aside Eastern Avenue (the A12) at national grid reference TQ476891 in the London Borough of Barking and Dagenham.
- 1.1.2 BeFirst are in the process of finalising Regulation 19 of the borough's Local Plan which will go out for Consultation in September 2020.
- 1.1.3 An issue has arisen with the site allocation and the proposed Site of Importance for Nature Conservation (SINC), Padnall Lake. A report produced by the author for the London Brough of Barking and Dagenham in 2017 identified the lake and its surrounds as a potential SINC (see Appendix 1). BeFirst wish to amend the Regulation 19 plan so it will not preclude development along the strip of land adjacent to the A12 (Appendix 2). BeFirst did not wish to proceed with the preparation of a new Bio Report at this stage as so far, the site has not been formally adopted as a SINC. For this reason, Denis J Vickers (Consultant Ecologist) was commissioned to carry out an ecological assessment and report to set out the facts to inform the client.
- 1.1.4 The survey aims to highlight evidence of any significant loss of nature conservation value should the mounded land to the east of the lake not be included within Padnall Lake SINC and at some time in the future be developed. The presence of and protected / invasive species that could result in a constraint to any proposed redevelopment is reviewed. Where appropriate, mitigation and biodiversity enhancements are also suggested.

1.2 SCOPE OF THE REPORT

1.2.2 This report is based on a desktop study and field survey using standard Phase 1 survey methodology (JNCC 2010), modified for Greater London using the Mayor of London's Biodiversity Strategy (2002). This approach is designed to identify broad habitat types at a site, to identify the potential of habitats to support protected species, and to assist in providing an overview of the ecological interest at a site. The assessment follows guidelines produced by the Chartered Institute of Ecology and Environmental Management (CIEEM 2017 & 2018). It is generally the most

widely used and professionally recognised method for preliminary ecological appraisal.

1.3 SITE DESCRIPTION

1.3.1 The site comprises two mounds of land lying east of Padnall Lake (see Appendix 1). Mound 1 is the greatest in area at 0.14ha (Photo 1); and Mound 2 (which is adjacent to the lake) is significantly smaller at 0.025ha (Photo 2). Both mounds are covered in semi-improved neutral grassland (SNG) with interspersed tall herbs (TH). Mound 1 has a desire line extending along its crest which is characterised by sparse vegetation with patches of bare soil (Photo 3).

1.4 SITE CONTEXT AND STATUS

- 1.4.1 This site is located to the north of the A12 and at the southern edge of the Marks Gate Estate in the London Borough of Barking and Dagenham (national grid reference TQ 47854 89117). It is situated approximately 6.75km north-east of Barking Town Centre and about 3.4km west of Romford. The site is bounded by housing to the north, open space to the east, the A12 to the south and Padnall Lake to the west.
- 1.4.2 No known nature conservation designations apply to the site. Within a 1km search radius there are no European sites or national statutory designated sites.

1.5 SITE PROPOSALS

1.5.1 The area of open land aside the A12 will possibly accommodate more than 200 housing units and is likely to include the mounded areas to the east of Padnall Lake. New dwellings would range from 4 to 8 storeys in height.

1.6 AIMS OF SURVEY

- 1.6.1 This ecological assessment aims to:
 - highlight evidence of any significant loss of nature conservation value should the mounded land to the east of the lake not be included within the Padnall Lake SINC and is developed;
 - identify protected and priority species, habitats and invasive species, on and adjacent to the site;
 - Where appropriate suggest mitigation and biodiversity enhancements.

2.0 Methodology

2.1 DESKTOP STUDY

- 2.1.1 A search was completed using an on-line mapping service (https://magic.defra.gov.uk) for statutory designated sites.
- 2.1.2 Consideration was given to Habitats and Species of Principal Importance for the Conservation of Biodiversity in England listed under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended) and those covered by the London Biodiversity Partnership Biodiversity Action Plan that were confirmed to be, or are potentially, present at the site.

2.2 HABITAT SURVEY

- 2.2.1 A brief site visit was carried out on the 25-06-2020 and habitat survey on the 18-07-2020. Habitats were described following Phase 1 survey methodology (JNCC 2010 & Mayor of London 2002). Weather conditions on both days were sunny and warm. The survey was conducted by a highly experienced ecologist.
- 2.2.2 A description of habitat types present is given under paragraph 3.3.Photographs of the site showing the chief habitats present appear in Appendix 5.
- 2.2.3 A full list of plant species identifiable at the site during this survey, together with an assessment of their abundance, appears in Appendix 4. Scientific names are given after the first mention of a vascular plant species; thereafter common names only are used, nomenclature follows Stace (2019).
- 2.2.4 Identifiable fauna noted during the habitat survey were also recorded.

2.3 SPECIES EVALUATION CRITERIA

- 2.3.1 The following species were noted and, where appropriate, the location was target noted with a 10-figure grid reference:
 - Species protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).
 - Nationally rare species.
 - Nationally scarce species.
 - Red data book species.
 - Species of Principal Importance in England. These species were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to

- be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework (Defra 2012).
- Notable species for the Greater London area. Notable is defined as species
 which were recorded from 15% or fewer of the 400 two-kilometre recording
 squares (tetrads) in Greater London in the Flora of the London Area (Burton
 1983).
- Trees which are notable because of size or likely antiquity.
- Non-native invasive species listed under schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

2.4 ASSESSMENT OF HABITAT LOSS

2.4.1 Information was gathered for the proposed Padnall Lake SINC via consulting the Biodiversity Survey of the London Borough of Barking and Dagenham (2017). This included a full species list and estimate of habitat coverage (expressed as percentages) for both the site's constituent parcels (see Appendix 1). Particular attention was afforded the parkland which comprised the lake's surrounds (i.e. parcel 16702/02). A full species list for this area was retrieved and appears in Appendix 4. It was noted that habitats on site had changed little in the four years from 2016 when the data for the borough biodiversity survey were gathered¹. The area of the parkland parcel and the two mounds were calculated from maps of the area. This made it possible to estimate the loss of habitats which would result should the mounds be built upon.

2.5 LIMITATIONS

- 2.5.1 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.
- 2.5.2 The habitat survey was undertaken in July and therefore some early flowering components of vegetation may have been missed or absent at the time of the survey or otherwise under recorded. This is not considered to be a significant constraint to habitat assessment. This habitat survey does not constitute a full botanical survey.

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¹ The 2016 survey of the Padnall Lake site was undertaken by the author of this report

2.5.3 The assessment of habitat coverage carried out as part of a habitat survey is an estimate. This is undertaken using ordnance survey mapping, digital aerial photographs and information gathered on-site during the survey. The accuracy of this information depends on the experience and interpretation of the surveyor.

3.0 Survey results

3.1 SITES OF STATUTORY IMPORTANCE FOR NATURE CONSERVATION

3.1.1 The proposed development site was not subject to any statutory nature conservation designations, such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Importance (SSSIs) National Nature Reserves (NNRs) or Local Nature Reserves (LNRs). There were no European or national statutory designations within a 1km radius of the site.

3.3 HABITAT SURVEY

Overview

3.3.1 The site (i.e. Mounds 1 and 2) had a combined area of 0.165ha. In both cases semi-improved neutral grassland was dominant and tall herbs frequent. As the latter habitat was intimately interspersed within the grassland, no attempt was made to separate these with regards to location in the following description. Photographs of the site are found in Appendix 5.

Semi-improved neutral grassland

3.3.2 False oat-grass *Arrhenatherum elatius* (Photo 4) and creeping bent were abundant; common bent *Agrostis capillaris* was frequent; cock's-foot *Dactylis glomerata*, perennial rye-grass *Lolium perenne* and smaller cat's-tail *Phleum bertolonii* were occasional.

Tall herbs

3.3.3 Included in this category were frequent cow parsley *Anthriscus sylvestris* (Photo 5), creeping thistle *Cirsium arvense* and hogweed *Heracleaum sphondylium*; horse-radish *Armoracia rusticana*, spear thistle *Cirsium vulgare*, cleavers *Galium aparine*, creeping cinquefoil *Potentila reptans*, broad-leaved dock *Rumex obtusifolius* and common nettle *Urtica dioica* were occasional. Species considered rare on site also occur e.g. black horehound *Ballota nigra*, greater bindweed *Calystegia sylvatica*, field bindweed *Convolvulus arvensis* (Photo 6), cut-leaved cranesbill *Geranium dissectum*, dove's-foot cranesbill *G. mole*, common ragwort *Jacobaea vulgaris*,

autumn hawkbit *Scorzoneroides autumnalis*, hedge mustard *Sisymbrium officinale* and dandelion Taraxacum sp.

Fauna

- 3.3.4 The following invertebrate fauna were identified on site:
- a) Butterflies
 - Gatekeeper Pyronia tithonus
 - Meadow brown Maniola jurtina
 - Skipper Thymelicus sp.
 - Small white Pieris rapae
- b) Other invertebrates
 - Grasshoppers Chorthippus spp.
 - Migrant hawker Aeshna mixta

4.0 Species and site evaluation

4.1 RARE AND NOTABLE SPECIES

- 4.1.1 No species were found to meet the criteria detailed under paragraph 2.3.
- 4.1.2 Several types of invertebrates were observed on site including grassland and tall herb specialists e.g. small white, gatekeeper, skipper and meadow brown (butterflies) and grasshoppers. Some were abundant.

4.2 COMPARISON WITH SURVEY UNDERTAKEN IN 2016

Species - flora

4.2.1 A list of all vascular plant species for 2016 was compiled for the parcel of parkland which enclosed Padnall Lake (16702/02 in Appendix 1). The resulting species list was displayed side by side with those records acquired during the 2020 survey (Appendix 4). There was a clear difference in species richness between the two plant lists with twenty-five taxa recorded during the 2020 survey and thirty-four taxa recorded in 2016. However, this was rather misleading as the area around the lakes was significantly larger and comprised a wider range of habitats. Nonetheless, sixteen taxa were common to both surveys. The major SNG and TH components were similar in both cases. This (and anecdotal evidence provided by the author), indicated that significant change in species composition had not taken place over the four-year period between surveys.

Habitats

4.2.2 The 2016 data for parcel 16702/02 included an estimate of the percentage of broad habitat types present. Twenty percent of the area was said to be covered with semi-improved neutral grassland (SNG) and a further five percent coverage due to tall herb (TH) vegetation. This equated to approximately 0.345ha being attributed to these habitats in 2016. From current mapping the sum of the area covered by the mounds was calculated as 0.165ha. As in 2016, the 2020 survey only found SNG and TH on the mounds. Therefore, it can be assumed that there would be a 0.165ha (or ~48%²) loss of these habitats should these mounds be developed.

5.0 Conclusions and recommendations

5.1 CONCLUSIONS

- No protected or priority species were recorded on the mounds.
- No protected or priority habitats were recorded on the mounds.
- No invasive species were noted.
- It is probable that development of the mounds will have zero adverse impact on nearby SINCs.
- Nevertheless, development of the mounds would result in an estimated 48% loss of semi-improved neutral grassland and tall herb vegetation, both of which are attractive habitats for a range of invertebrate specialists (just a few of which are listed above). There should be a commitment to mitigating this loss (outlined in 5.2 below) as part of any future works.

5.2 RECOMMENDATIONS

- 5.2.1 In the light of 5.1 above, the boundary of the proposed SINC can be revised as depicted in Appendix 3.
- 5.2.2 In order to maintain/enhance the current biodiversity value of the proposed Padnall Lake SINC post boundary revision, the mounds to the south of the lake (Photos 7 & 8) which are not tree or shrub covered, should be cleared of vegetation

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² Calculation (0.165/0.345)/100) or approximately 48%

and sown with a wildflower and grass seed mixture such as Emorsgate EM2 Standard General Purpose Meadow Mixture. This will increase the number and density of nectar-rich wildflowers and overall attractiveness of the area to pollinators and grassland invertebrates.

London Wildlife Sites Board

5.2.3 It is strongly recommended that the views of the London Wildlife Sites Board (LWSB) are sought with regards this proposed SINC boundary revision. LWSB offers advice on changes to policies and procedures relating to the identification and selection of SINCs (LWSB, Advice Note, 2020).

5.3 BIODIVERSITY ENHANCEMENT SUGGESTIONS GOING FORWARD

Introduction

5.3.1 Going forward, a range of biodiversity enhancements are suggested for the wider site (aside the A12) which hopefully will complement and augment the landscaping initiatives outlined in the *Padnall Lake Marks Gate Estate* document (June 25th, 2020):

Biodiversity

- 5.3.2 The National Planning Policy Framework (NPPF) encourages opportunities to incorporate biodiversity in and around developments and suggests that biodiversity enhancements should be embedded within the design for any future development(s) e.g. the linear park. Soft landscaping should comprise a range of wildlife attracting shrubs. These should produce ample nectar and/or berries for foraging insects and birds. A list of possible species is shown in Appendix 6. Planting should comprise at least 50% native species.
- 5.3.3 If seed mixtures are to be sown in the linear park or marginal species planted around the banks of the lake, this should comprise wildlife attracting native species. Planting of marginals at the lakeside would currently require some repair works to banks (e.g. in one location a fallen tree has levered up revetments). Additionally, given the current profile and makeup of the banks (Photos 9 and 10), without major works planting would need to be undertaken in baskets/gabions.
- 5.3.4 If possible, reinforcing the green buffer planting along the A12 should be considered e.g. the establishment of a dense hedge its composition drawn from the following species hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, dogrose *Rosa canina*, field maple *Acer campestre*, dog-wood *Cornus sanguinea*, quelder-rose *Viburnum opulus* and hazel *Corylus avellana*.

- 5.3.5 Bird boxes should be fitted to or integrated into the walls of new buildings to provide additional nesting opportunities for Birds of Conservation Concern (BoCC). Given the location, these should provide for birds associated with more urban settings e.g. house sparrow, starling and song thrush. Boxes should be positioned between three and four metres high on new buildings. A clear flightpath towards the box should be available and it should face between the north and east to avoid too much sunlight and the wettest winds.
- 5.3.6 Bat boxes/bricks should be incorporated into the site design of any new development to increase roosting opportunities for these species. The location of the boxes can vary but they should be situated away from direct light and the main road. Bat boxes should be placed securely at approximately 5m (no lower than 3m) facing in a variety of directions to maximise the number of microclimates created. A Habi-Sabi³ bat box could be used: this has two chambers which allow bats to regulate their temperature by choosing either a warmer or cooler chamber. Ideally the boxes should face south, south-east and south-west. Care should be taken to ensure that the entrances to bat boxes are not obstructed (i.e. a clear flight path is possible).

Lighting

- 5.3.6 Consideration will need to be given to possible impacts of night-time lighting on bats (e.g. along new streets and winding path through linear park). Whilst bat species vary in their response to additional night-time lighting, species which are rare in London tend to be most negatively affected. It is recommended that the lighting proposals for the development clearly address the need to limit night-time spillage and glare on areas likely to support bat activity (now or in the future). Here it is suggested that LED warm white lighting is used (which is also highly energy efficient). The following recommendations are based on those produced by the Bat Conservation Trust (Bat Conservation Trust/Institute of Lighting Engineers 2018) et al:
 - The brightness of lights should be as low as legally possible.
 - The lighting should be directed to where it is needed to avoid light spillage.

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³ NHBS http://www.nhbs.com/habi_sabi_bat_box_tefno_188487.html?ad_id=1509

- Upward lighting should be avoided as this would contribute significantly to local increases in light pollution.
- Light should be restricted to selected areas by fitting hoods that direct the light below the horizontal plane, preferably at an angle less than 70 degrees.
- The height of lighting columns should be limited, and light directed at a low level.
- Lighting associated with individual units, especially on balconies, should be
 planned to avoid impacts on bats as carefully as lighting proposals for public
 areas.

6.0 References

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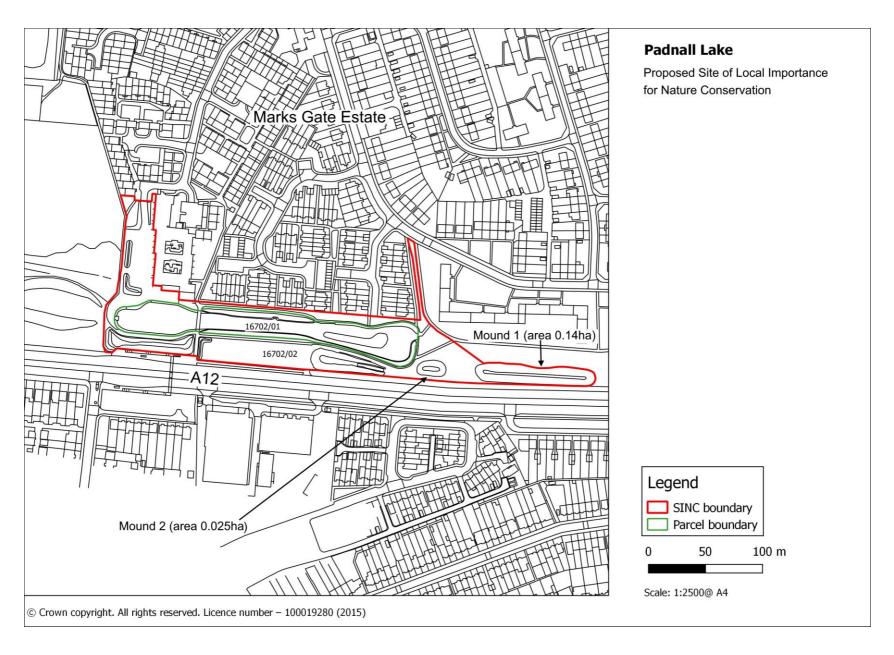
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Appendix 1: Padnall Lake SINC map

Showing mounded areas to the east of the lake



Appendix 2: Masterplan

Preferred Masterplan (Option 2)
Current Masterplan addressing constraints

PREFERRED MASTERPLAN (Option 2)

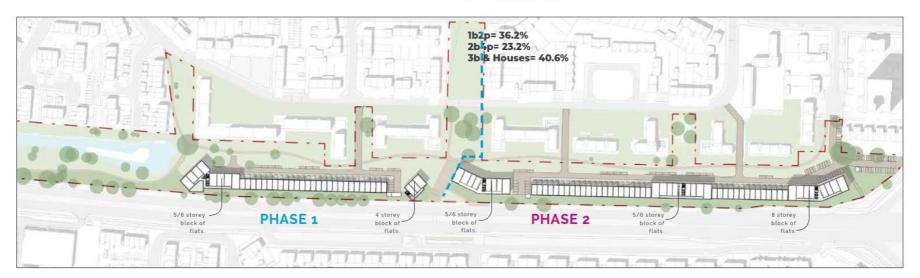


CURRENT MASTERPLAN

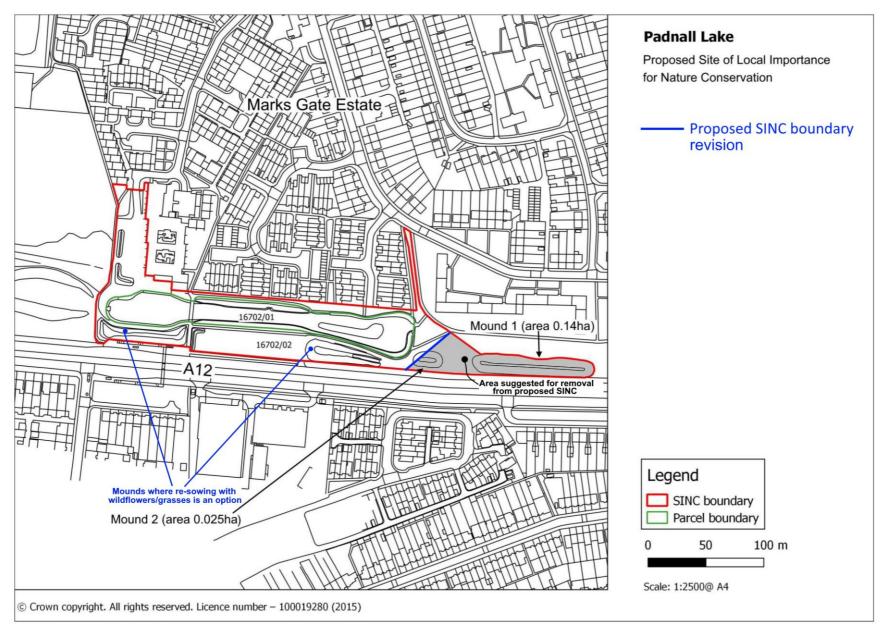
MASTERPLAN ADDRESSING CONSTRAINTS

254 UnitsParking Ratio = 0.46
F = 0.39, H = 0.68

Phase 1 27 Houses / 52 flats Phase 2 36 Houses / 139 flats



Appendix 3: Proposed revision of SINC boundary



Appendix 4: Vascular plant species list

Abundance was estimated using the DAFOR scale as follows:

D = dominant, A = abundant, F = frequent, O = occasional, R = rare; Qualifiers: s=Seedling, y=Young tree, t=Tree (mature), c=Clumped, e=Edge, w=Wet, d=Dry, ?=likely identity

Parcels:	Scientific name	Mounds to east (Surveyed July 2020)				Surrounding Parkland (Surveyed 2016)			
Common name		DAFOR	Qualifiers			DAFOR	Qualifiers		
			1	2	3		1	2	3
Common Bent	Agrostis capillaris	F				0			
Creeping Bent	Agrostis stolonifera	А				D			
Alder	Alnus glutinosa					R	s		
Cow Parsley	Anthriscus sylvestris	F				А			
Lesser Burdock	Arctium minus					0			
Horse-radish	Armoracia rusticana	0				0			
False Oat-grass	Arrhenatherum elatius	Α				D			
Mugwort	Artemisia vulgaris					0			
Black Horehound	Ballota nigra	R							
Birch	Betula					0	у		
Large Bindweed	Calystegia silvatica	R				0			
Creeping Thistle	Cirsium arvense	F				F			
Spear Thistle	Cirsium vulgare	0							
Field Bindweed	Convolvulus arvensis	R				А			
Dogwood	Cornus sanguinea					0	е		
Hawthorn	Crataegus monogyna					F	е		
Cock's-foot	Dactylis glomerata	0				F			
Great Willowherb	Epilobium hirsutum					R			
Ash	Fraxinus excelsior					F	е		
Cleavers	Galium aparine	0				0			
Cut-leaved Crane's-		_							
bill Dove's-foot Crane's-	Geranium dissectum	R							
bill	Geranium molle	R							
lvy	Hedera helix					R			
	Heracleum	_				_			
Hogweed	sphondylium	F				F			
Hoary Mustard	Hirschfeldia incana					0			
Yorkshire-fog	Holcus lanatus					F			
Wall Barley	Hordeum murinum	R							
Common Ragwort	Jacobaea vulgaris	R				0			
Perennial Rye-grass	Lolium perenne	0				D			
Crab Apple	Malus sylvestris					0	У	t	
Smaller Cat's-tail	Phleum bertolonii	0				F			
Ribwort Plantain	Plantago lanceolata					0			
Greater Plantain	Plantago major	^				0			
Creeping Cinquefoil	Potentilla reptans	0				F			
Rose	Rosa					R	е		
Dog-rose	Rosa canina	^				F	е		
Broad-leaved Dock Grey Willow	Rumex obtusifolius Salix cinerea	0				R	s		

Parcels:		Mounds to east (Surveyed July 2020)				Surrounding Parkland (Surveyed 2016)			
Common name	Scientific name	DAFOR	Qualifiers			DAFOR	Qualifiers		
			1	2	3		1	2	3
Crack-willow	Salix euxina					F	е	у	t
Autumn Hawkbit	Scorzoneroides autumnalis	R							
Hedge Mustard	Sisymbrium officinale	R							
Dandelioin	Taraxacum officinale agg.	R							
Common Nettle	Urtica dioica	0	С			А			

Appendix 5: Site photographs



Photo 1: Mound 1 – covered in semi-improved neutral grassland and tall herbs



Photo 2: Mound 2 – similarly vegetated to mound 1 above.



Photo 3: Desire line running the length of the crest of Mound 1 – bare or sparsely vegetated



Photo 4: Almost pure stand of false oat-grass on part of Mound 1



Photo 5: Cow parsley within the grassland sward of Mound 1



Photo 6: Field bindweed amongst the grassland sward of Mound 1



Photo 7: First example - mound to the south of Padnall Lake which would be suitable for clearance and sowing with a wildflower mix to enhance biodiversity



Photo 7: Second example - western end of mound to the south of Padnall Lake which would be suitable for clearance and sowing with a wildflower mix to enhance biodiversity



Photo 9: Mud over concrete revetment heavily trampled by geese – not suitable for the establishment of marginal vegetation

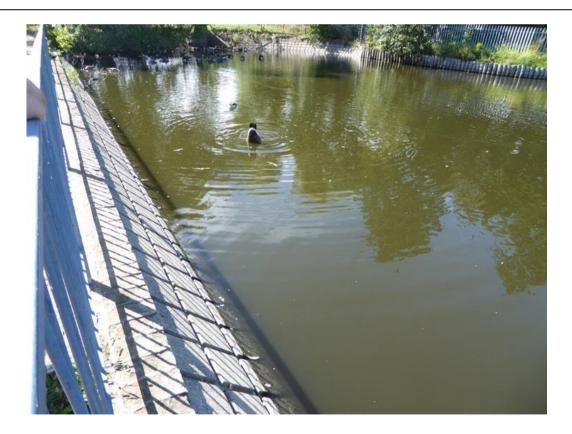


Photo 10: Quite steep lakeside bank prevents trampling by geese but revetment comprises concrete blocks - not suitable for the establishment of marginal vegetation

Appendix 6: Wildlife attracting shrubs

Native species:

Blackthorn Prunus spinosa

Buckthorn Rhamnus catharticus
Cherry plum Prunus cerasifera
Elder Sambucus nigra
Guelder rose Viburnum opulus

Hawthorn Crataegus monogyna

Hazel Corylus avellana
Wild privet Ligustrum vulgare

Non-native Species:

Bodant viburnum x bodnantense

Californian lilac Ceanothus spp.

Creeping cotoneaster Cotoneaster frigidus

Firethorn *Pyracantha* spp.

Himalayan honeysuckle Leycesteria formosa

Japanese quince Chaenomeles japonica

Laurustinus Viburnum tinus Lilac Syringa vulgaris

Oregon grape *Mahonia* spp.

Mock orange Philadelphus spp.

Serviceberry Amelanchier canadensi

Natural England (2007)