MAPLIN WAY, SOUTHEND-ON-SEA

BIODIVERSITY NET GAIN BASELINE ASSESSMENT

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This report has been compiled in accordance with BS 42021:2013 Biodiversity – Code of practice for planning and development, as has the assessment to which it relates.

The information, data, advice and opinions which have been prepared and provided are true and have been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional *bona fide* opinions.

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1.2 The assessment was required in order to calculate the number of Biodiversity Units the site currently represents in order to explore opportunities for offsetting.

1.3 As the surveys were undertaken out of the optimal surveying season, a new assessment should be carried out at the optimum time of year to identify with greater accuracy the baseline biodiversity value use of the site prior to its use as a Biodiversity Net Gain offsetting site.

1.4 The site covers approximately 1.57 hectares and comprises a grassland field, with areas of ornamental shrubbery and trees around the edges of the site and numerous recently planted trees within the central grassland. At the southern end of the site there is a large wooded area surrounding a pond, with an area of wet woodland.

1.5 The baseline units for the site's area habitats have been calculated to be **12.66.**

1.6 Enhancement of the site's modified grassland from poor to moderate condition could generate **1 habitat unit** per **0.0268 ha** enhanced (22.15% of the sites modified grassland).

1.7 Enhancement of the site's other broadleaved woodland from poor to moderate condition could generate **1 habitat unit** per **0.0134 ha** enhanced (67.10% of the sites broadleaved woodland).

1.8 Alternatively, enhancing the site's other broadleaved woodland from poor to good condition could generate **1 habitat unit** per **0.115 ha** enhanced (42.41 % of the sites broadleaved woodland).

1.9 Habitat creation can also be used to gain habitat units. Creating **0.194 ha** of moderate condition other neutral grassland could generate **1 net habitat unit**.

1.10 Planting **24** native trees that will reach small size, poor condition within the target time to condition will generate **0.3 habitat units**.

1.11 Creating **0.272 km** of moderate condition native hedgerow would provide 1 habitat unit, while creating **0.136 km** of moderate species-rich native hedgerow would provide **1 habitat unit.**

2. INTRODUCTION

2.1 General Introduction

This report has been prepared by Essex Ecology Ltd., for Southend-on-Sea City Council. It comprises a Biodiversity Net Gain baseline assessment of land at Maplin Way, Southend-on-Sea. The assessment was required in order to calculate the number of Biodiversity Units the site currently represents in order to explore opportunities for offsetting.

2.2 Site Location and Description

The site is located off Maplin Way, Southend-on-Sea, Essex. The Ordnance Survey grid reference for the approximate site centre is TQ 92207 85692.

The site covers approximately 1.57 hectares and comprises a grassland field, with areas of ornamental shrubbery and trees around the edges of the site and numerous recently planted trees within the central grassland. At the southern end of the site there is a large wooded area surrounding a pond, with an area of wet woodland.

The surrounding landscape is entirely urban residential housing. Approximately 620 metres to the north is arable farmland, and Shoebury Common Beach lies 1.25 kilometres to the south. Southend-on-Sea city centre lies approximately four kilometres west of the site.

See Map 1 for a plan of the site and Appendix 1 for site photographs.

2.3 Objective

The aim of the assessment was to assess the site's biodiversity baseline using the latest Statutory Metric (DEFRA, 2023) for potential future use as a site for habitat creation in relation to offsetting the ecological impacts of development projects elsewhere. Recommendations for habitat creation, enhancement and management are also included in this report.

2.4 Assessment Methodology

Habitats on the site were mapped in line with the UK Habitat Classification, using the methodology detailed in the UK Habitat Classification User Manual, Version 2.0 (UK Habitat Classification Working Group, July 2023) using data collected by Essex Ecology during a site visit conducted on 27th October 2023 during suitable weather conditions.

Each habitat (referred to under this system as a Primary Habitat) was classified using an alphanumeric code, with reference to the UK Habitat Classification Version 2.0 (UKHab Ltd. 2023). This method is designed to enable the description of each habitat on a hierarchical basis up to a maximum of five levels, including the identification of Habitats of Principal Importance in England (HPIE) (formerly known as Biodiversity Action Plan (BAP) habitats) and those listed on Annex I of the Conservation of Habitats and Species Regulations 2017 (as amended).

The site was mapped using QGIS. Habitat data was then converted into Biodiversity Units, so that the Statutory Metric could be applied.

Attributes that include extent, condition, distinctiveness and Biodiversity Units have been provided.

Habitat condition has been assessed according to the technical guidance provided with the Statutory Metric as well as the surveying ecologist's professional judgement.

Habitats are automatically assigned distinctiveness bands within the Statutory Metric. The distinctiveness bands and criterion thresholds are as follows:

Distinctiveness Band	Criterion Threshold
Very High Distinctiveness	Small amount of remaining habitat with a lot of it unprotected by designation. Endangered or Critical European red list habitats.
High Distinctiveness	Remaining Priority Habitats not in very high distinctiveness band and other red list habitats.
Medium Distinctiveness	Non-Priority Habitats with significant wildlife benefit and one replaceable Priority Habitat (arable field margins).

Low Distinctiveness	Agricultural and urban land use of lower biodiversity value.
Very Low Distinctiveness	Urban, with artificial structure, which are un-vegetated, unsealed surface or built linear features of very low biodiversity value.

2.5 Mapping

The site habitat maps were produced using QGIS computer software. The Minimum Mapping Unit (MMU) was employed for this survey where possible. Minimum mapped habitat areas were 25m^2 and minimum mapped linear features were five metres in length. Habitats mapped as areas were digitised using polygons and linear habitats were mapped as lines.

2.6 Competence

Charlotte Smith has been with the company since September 2020 after previously working with Essex Ecology as an intern. She has completed a BSc in Zoology and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). She has undertaken numerous ecological site appraisals, habitat assessments and a wide range of protected species surveys, including Great Crested Newt, reptile, bat and Water Vole. She has caried out multiple Biodiversity Net Gain assessments using Natural England Metrics 2.0 and 3.0. She has attended a course specific to the Metric and UK Habitat Classification.

2.7 Constraints and limitations

The habitats present on any site are subject to change over time. All assessments of this kind are based upon the situation as it was at the time the fieldwork upon which the assessment was based was carried out.

The habitat assessment was undertaken during the winter, at a time when many plant species cannot be identified. Therefore, the degree to which certain habitat types could be identified or differentiated from others and the accuracy of habitat condition assessments was limited.

Therefore, a new assessment should be carried out at the optimum time of year to identify with greater accuracy the baseline biodiversity value use of the site prior to its use as a Biodiversity Net Gain offsetting site.

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3. ASSESSMENT RESULTS

3.1 Summary

The following UK Habitat Classification habitats are currently present at the site:

Baseline Area Habitats	Area (hectares)
Grassland – Modified grassland	1.21
Grassland – Other neutral grassland	0.0427
Other woodland; broadleaved	0.1997
Wet woodland	0.0446
Ponds (non-priority)	0.0218
Urban – Introduced scrub	0.0217
Urban – Built linear features	0.0239
Individual trees	0.8062
Total Habitat Area*:	**2.3706**

*Total Habitat Area is greater than the size of the site as a proxy for canopy biomass. It is based on the root protection formula derived from The British Standard "Trees in Relation to Design, Demolition and Construction - Recommendations" (BS 5837) (2012).

See Map 1 for primary habitats and habitat parcel reference locations.

3.2 Strategic Significance

The site is a Protected Green Space under Southend-on-Sea's Local Plan, and is designated for its recreational and amenity value, in addition to its value to biodiversity. Therefore, all habitats are assigned a medium strategic significance. Urban habitats are assigned low strategic significance.

The site does not lie within any statutory or non-statutory sites.

3.3 Baseline Habitat Conditions

See Map 3 for baseline habitat condition and Map 4 for habitat distinctiveness.

3.3.1 Modified grassland

Modified grassland is defined as vegetation dominated by a few fast-growing grasses on fertile, neutral soils. It is frequently characterised by an abundance of Rye-grass and White Clover.

The site is predominantly made up of modified grassland, G1. It has poor species diversity, being dominated by Perennial Rye-grass, with Cock's-foot, Yarrow, Ribwort Plantain, Common Mallow and Common Daisy.

Condition Assessment – Low Distinctiveness Grassland		
	Condition Criteria	**G1**
A	There are 6-8 vascular plant species per m2 present, including at least 2 forbs. **Note - this criterion is essential for achieving Moderate or Good condition.**	Fail – Less than 6 species per m2
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	Fail – all sward is less than 7cm
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present).	Pass
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Pass
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Pass
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Pass
G	There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA).	Pass
	Total	**5**
	Condition	**Poor**

The grassland automatically achieves poor condition due to failing criteria A.

3.3.2 Other neutral grassland

Other neutral grasslands are defined as grasslands on neutral soils, with Perennial Rye-grass likely to be present at <30% and between nine and fifteen further species (m^2) also present.

There is a small area of other neutral grassland , G2, surrounding the dried-out pond to the south of the site, dominated by Yellow Flag Iris, with other species including Great Willowherb and Redshank suggesting that the area is wetter at times. Other plant species present include Bittersweet, Couch grass, Smooth Meadow Grass, Smooth Sow-thistle, Dandelion and Cleavers. Some scrub from the surrounding wooded area encroaches this area, including Willow scrub.

Condition Assessment – Medium Distinctiveness Grassland		
	Condition Criteria	**G2**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Fail
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Fail – scrub encroachment
E	Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species (as listed on Schedule 9 of WCA4) are present, this criterion is automatically failed.	Pass
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type. **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	Fail – less than 10 plant species per m2
	Total	**3**
	Condition	**Poor**

The grassland automatically achieves poor condition due to failing criteria A.

3.3.3 Woodland and forest – Other woodland; broadleaved

Defined as vegetation dominated by trees that are more than 5 metres high when mature, which form distinct, although sometimes open canopy with a canopy cover greater than 25%.

The woodland W1 incorporates the southern end of the site. It consists of Hawthorn, Aspen, Elder and young Sycamore. Ivy, Dogwood, Bramble and Bindweed are also present, as well as a large area of Old Man's Beard, which has become invasive. Some Willow scrub and young Holm Oak was recorded throughout. Nettles and Ivy form the ground layer, with some Alexanders and False Brome.

W3 is a small area of woodland to the east of the site, including Willow, Ash and Scots Pine. Non-native shrub forms the understorey, including Cotoneaster.

Condition Criteria – Other woodland; broadleaved and wet woodland						
	Features					
A	**Age Distribution of trees**					
	3 pts	3 age classes	**2 pts**	2 ages classes	**1 pt**	1 age class
B	**Wild, domestic and feral herbivore damage**					
	3 pts	none	**2 pts**	<40% of woodland	**1 pt**	>40% of woodland
C	**Invasive plant species**					
	3 pts	none	**2 pts**	<10% cover AND no Rhododendron or Cherry laurel	**1 pt**	>10% cover OR Rhododendron or Cherry Laurel
D	**Number of native tree species**					
	3 pts	five or more	**2 pts**	3-4 species	**1 pt**	0-2 species
E	**Cover of native tree and shrub species**					
	3 pts	>80% of canopy and understorey	**2 pts**	50-80% of canopy and understorey	**1 pt**	<50% of canopy and understorey
F	**Open space within woodland**					
	3 pts	10-20% temporary open space	**2 pts**	20-40% temporary open space	**1 pt**	>40% temporary open space
G	**Woodland regeneration**					
	3 pts	all three classes	**2 pts**	one or two classes	**1 pt**	no classes or coppice regrowth in woodland
H	**Tree health**					
	3 pts	<10% mortality and no pests/diseases/dieback	**2 pts**	10-25% mortality and/or dieback, low risk pests/disease present;	**1 pt**	>25% mortality or high risk pests/disease present
I	**Vegetation and ground flora**					
	3 pts	ancient woodland indicators	**2 pts**	recognisable NVC community	**1 pt**	no recognisable NVC community
J	**Woodland vertical structure**					
	3 pts	3+ storeys	**2 pts**	2 storeys	**1 pt**	0-1 storeys
K	**Veteran trees**					
	3 pts	2+/ha	**2 pts**	1/ha	**1 pt**	none
	Amount of deadwood					

L	**3 pts**	50%	**2 pts**	25-50%	**1 pt**	<25%
M	**Woodland disturbance**					
	3 pts	no enrichment/damage	**2 pts**	<1 ha enriched OR <20% area damaged ground	**1 pt**	>1 ha enriched OR >20% are damaged ground

Habitat type:	**Condition Assessment - Other woodland; broadleaved**														
Scores of '1' '2' or '3' are allocated against each criteria assessed.															
	Criterion													**TOTAL**	**Condition**
Parcel Ref	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**		
W1	2	3	3	2	2	3	1	3	1	1	1	1	2	25	Poor
W3	1	3	2	1	1	3	2	2	1	2	1	1	2	21	Poor

3.3.4 Woodland and forest - Wet woodland

Defined as woodland occurring on poorly drained or seasonally wet soils, usually with Alder, Birch and Willow as the predominant tree species.

W2 is a small area of wet woodland next to the pond and other neutral grassland. It consists of predominantly Willow, with lots of young saplings at the edges and one large Weeping Willow.

Habitat type:	**Condition Assessment - Other woodland; broadleaved**														
Scores of '1' '2' or '3' are allocated against each criteria assessed.															
	Criterion													**TOTAL**	**Condition**
Parcel Ref	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**		
W2	2	3	3	1	1	3	2	3	1	1	1	1	2	24	Poor

3.3.5 Pond (non-priority)

There is one pond present at the site to the south, that was dry at the time of survey. The plant species present suggests the pond holds more water and covers the whole area of neutral grassland mentioned above at times, but at the time of survey it appeared to have been dry for a while with no standing water visible.

Condition Assessment – Ponds		
	Criteria description	**Site pond**
A	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Fail – No standing water at time of survey
B	There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.	Pass
C	. Less than 10% of the water surface is covered with duckweed *Lemna* spp. or filamentous algae.	Pass
D	The pond is not artificially connected to other waterbodies, such as agricultural ditches or artificial pipework.	Pass
E	Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams, pumps or pipework.	Pass
F	There is an absence of listed non-native plant and animal species.	Pass
G	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass
H	Emergent, submerged or floating plants (excluding duckweed)[4] cover at least 50% of the pond area which is less than 3 m deep.	Fail - no standing water
I	The pond surface is no more than 50% shaded by adjacent trees and scrub.	Fail – Surrounded by trees
	Total	**6**
	Condition	**Moderate**

3.3.6 Urban - Introduced shrub

There are areas of ornamental shrub around the edges of the site. Non-native species present include Firethorn, Laurel, Cotoneaster, Viburnum and Holm Oak. It is within these areas that many of the individual trees were recorded. It is worth noting that many Cotoneaster species are schedule 9 invasive species within the UK, and while those found onsite were not identified to species, there is a high chance that they may be invasive.

A condition assessment for built linear features is not applicable within the metric.

3.3.7 Urban - Built linear features

A hardstanding path runs along the western and northern perimeter of the site.

A condition assessment for built linear features is not required within the metric.

3.3.8 Individual trees – rural trees

The broad habitat type 'Individual trees' may be used where a tree (or a group of trees) over 7.5 cm in stem diameter at breast height (DBH) does not meet or contribute towards the definition of another broad habitat type.

53 trees over 7.5 cm stem diameter at breast height (DBH) were recorded onsite, while a further 17 recently planted trees in the centre of the site were not included in the assessment as they were under 7.5 cm.

4 small trees, 16 medium and 1 large tree were recorded as good condition, while 8 small trees, 25 medium and 1 large tree were recorded as moderate condition, and 1 medium sized tree was recoded as poor condition.

Trees T1 – T7 were located in a loose cluster within the grassland to the south of the site, and included large Horse Chestnuts, Ash and Sycamores. T8 is a very large Weeping Willow next to the pond, covered in Ivy. The rest of the trees were in various groups around the site, often within the introduced shrub. A group of Scots Pine, T26-T30, are found along the north-eastern border of the site. A very large White Poplar, T47, was recorded within an area of introduced shrub to the north-west of the site.

Other species present include Sycamore, Ash, Hawthorn and Sorbus sp.

The newly planted trees in the centre of the grassland did not qualify for condition assessment due to their small size. The majority are non-native species.

Tree reference locations can be found on Map 2.

Condition Criteria – Individual trees
A: The tree is a native species (or at least 70% within the block are native species).

B: The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).
C: The tree is mature (or more than 50% within the block are mature).
D: There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.
E: Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.
F: More than 20% of the tree canopy area is oversailing vegetation beneath.

Habitat type:	**Condition Assessment - Individual Trees**							
	Criterion (P -Pass, F-Fail)						**TOTAL**	**Condition**
Parcel Ref	**A**	**B**	**C**	**D**	**E**	**F**		
T1	F	P	P	P	F	P	4	Moderate
T2	F	P	P	P	P	P	5	Good
T3	F	P	F	P	F	P	3	Moderate
T4	P	P	P	P	P	P	6	Good
T5	F	P	P	P	P	P	5	Good
T6	P	P	P	P	P	P	5	Good
T7	P	P	P	F	F	F	3	Moderate
T8	F	P	P	P	P	P	5	Good
T9	F	P	P	P	F	P	4	Moderate
T10	P	P	P	P	P	P	5	Good
T11	F	P	P	P	F	P	4	Moderate
T12	P	P	P	P	F	P	5	Good
T13	P	P	P	P	P	P	6	Good
T14	P	P	P	P	P	P	6	Good
T15	F	P	P	P	F	P	4	Moderate
T16	F	P	P	P	F	P	4	Moderate
T17	P	P	P	P	P	P	6	Good
T18	F	P	P	P	P	P	5	Good
T19	F	P	P	P	F	P	4	Moderate
T20	F	P	P	P	F	P	4	Moderate
T21	F	P	P	P	P	P	5	Good
T22	F	P	P	P	F	P	4	Moderate
T23	P	P	P	P	F	P	5	Good

T24	P	P	P	P	P	P	6	Good
T25	P	P	P	P	F	P	5	Good
T26	F	P	P	P	P	P	5	Good
T27	F	P	P	P	F	P	4	Moderate
T28	P	P	F	P	F	P	4	Moderate
T29	F	P	P	P	F	P	4	Moderate
T30	F	P	P	P	F	P	4	Moderate
T31	F	P	P	P	F	P	4	Moderate
T32	F	P	P	P	P	P	5	Good
T33	F	P	F	P	P	P	4	Moderate
T34	P	P	F	P	F	P	4	Moderate
T35	F	P	P	P	F	P	4	Moderate
T36	P	P	P	P	P	P	6	Good
T37	F	P	P	P	F	P	4	Moderate
T38	F	P	P	P	F	P	4	Moderate
T39	F	P	P	P	P	P	5	Good
T40	F	P	P	P	F	P	4	Moderate
T41	F	P	P	P	F	P	4	Moderate
T42	P	P	F	P	F	P	3	Moderate
T43	P	P	F	P	F	P	3	Moderate
T44	F	P	P	P	F	P	4	Moderate
T45	P	P	F	P	F	P	3	Moderate
T46	F	P	F	P	F	P	3	Moderate
T47	F	P	P	P	F	P	4	Moderate
T48	F	P	F	P	F	P	3	Moderate
T49	F	P	F	P	F	P	3	Moderate
T50	P	P	P	P	P	P	6	Good
T51	P	P	P	P	P	P	6	Good
T52	P	P	F	P	F	P	4	Moderate
T53	P	P	F	P	F	P	4	Moderate
T54	P	P	F	P	F	P	4	Moderate
T55	P	P	F	P	F	P	4	Moderate
T56	F	P	F	P	F	P	3	Moderate

4. BASELINE BIODIVERSITY UNIT CALCULATIONS

4.1 Baseline Biodiversity Units

The baseline Biodiversity Unit (BU) site values are presented in the following tables. Habitats that are of the same type and condition have been grouped together.

Area Habitat Type	Distinctiveness Score		Condition Score		Baseline Biodiversity Units (BU)
Grassland – Modified grassland	Low	2	Poor	1	**2.66**
Grassland – Other neutral	Medium	4	Poor	1	**0.19**
Other woodland; broadleaved	Medium	4	Poor	1	**0.88**
Wet woodland	High	6	Poor	1	**0.29**
Ponds (non-priority)	Medium	4	Moderate	2	**0.19**
Urban – Introduced scrub	Low	2	Condition Assessment N/A	1	**0.05**
Urban – Built linear features	V. Low	0	N/A - Other	0	**0.00**
Individual trees – rural trees	Medium	4	Good	3	**4.14**
Individual trees – rural trees	Medium	4	Moderate	2	**4.19**
Individual trees – rural trees	Medium	4	Poor	1	**0.07**
			Total		**12.66***

*Note the sum of columns may differ from the total units stated. This is due to rounding and is not considered significant. The totals stated reflect those calculated within the Biodiversity Metric Calculator Tool.

All calculations were put through the Biodiversity Net Gain Metric 'Off-site habitats' tabs.

The baseline Biodiversity Units for the site's area habitats have been calculated to be **12.66**.

5. POTENTIAL HABITAT UNIT UPLIFT

5.1 Overview

Habitat units can be gained by enhancing the current habitats to higher condition or habitat type or creating new habitats. The following habitat creation and enhancement measures are suggested. Recommendations are based on the site's current habitats and their condition, the relative feasibility of potential enhancement measures and the need to take other site use, including public use, into account.

5.1.1 Temporal Risk Multiplier

The temporal risk is the 'time to target condition' for any habitat and determines how long a particular habitat type is likely to take to reach the desired condition score.

If habitats are to be enhanced/created in advance, then the temporal risk will need to be changed accordingly which will impact the level of biodiversity units provided.

5.2 Habitat Enhancement

As the majority of the site is currently poor condition modified grassland, improving this to a higher condition is considered to be the easiest way to gain habitat units from the site. This would involve enhancing the current poor condition modified grassland to moderate condition.

The woodland areas are currently in poor condition. Enhancing them to moderate condition would also gain habitat units.

Below is a table showing various enhancement options. The areas given are what is required to achieve **1 habitat unit**.

Current habitat		**Size of area to be enhanced (ha)**		**Proposed habitat**		**% of site used**
Habitat	**Condition**			**Habitat**	**Condition**	
Modified grassland	Poor	**0.268**	→	Modified grassland	Moderate	**22.15**
Other broadleaved woodland	Poor	**0.134**	→	Other broadleaved woodland	Moderate	**67.10**

Other broadleaved woodland	Poor	**0.115**	→	Other broadleaved woodland	Good	**42.41**

5.3 Habitat Creation

5.3.1 Grassland

Another way to gain habitat units would be to create a habitat of higher distinctiveness, and therefore value. Creating moderate condition neutral grassland would be the easiest way to achieve habitat units. Creation of other habitats could be possible, but, considering the small size of the site, other neutral grassland would be less likely to cause opposition from members of the public as it will still allow the site to be used as an area of grassland.

Creation of moderate condition neutral grassland would entail the loss of an area of modified grassland, but, as the new grassland is of higher distinctiveness and condition, its creation would achieve a higher number of habitat units once it has reached target condition, so creating a net gain.

The area given in the table below is that required to achieve **1 net habitat unit** (accounting for the loss of units from the modified grassland to be lost to make way for other neutral grassland creation) at this site with the creation of higher distinctiveness, moderate condition grassland.

Habitat	Distinctiveness	Condition	Size of habitat creation area (ha)	% of site used
Other neutral grassland	Medium	Moderate	0.194	16.03

5.3.2 Tree planting

If considered appropriate for the site, tree planting can be used to attain further habitat units. The table below shows the number of native trees that could be planted to achieve **0.3 habitat units**. This is with the assumption that new whips would be planted instead of more mature trees.

Tree Planting

Habitat	Tree size within 30 years	Native/non-native	Condition	No. of trees	Metric area equivalent (ha)	Habitat units achieved
Individual tree – rural	Small (greater than 7cm and less than or equal to 30cm diameter at breast height)	Native	Poor	24	0.0977	**0.3**

5.4 Linear Habitat Creation

There is the potential, subject to feasibility, that the site could be used to plant hedgerows. Due to the small size of the site, the boundaries would be the best position and would provide corridors for wildlife to follow, as well as providing shelter and food for wildlife. Currently the site boundaries are fenced and back on to the surrounding residential gardens.

- Planting 0.272 km of moderate condition native hedgerow would provide **1 habitat unit.**
- Planting 0.136 km of moderate condition species-rich native hedgerow would provide **1 habitat unit.**

To be considered species rich, a hedgerow has to be planted with five or more native species.

5.5 Management

5.5.1 Overview

In order to achieve the habitat enhancements and creations within the 30-year timeframe, the habitats will have to be managed to achieve the condition targets. Management advice is listed below for each suggested scenario (see section 5.2 – 5.4).

5.5.2 Grassland enhancement

To achieve the target enhancement of the current poor condition modified grassland to moderate condition, certain criteria in the condition assessments will have to be achieved by changing the management and mowing regime.

Currently the grassland fails criteria A and B, with a pass of A required for moderate to good condition modified grassland.

- Criteria A: "There are 6-8 vascular plant species per m2 present, including at least 2 forbs."
- Criteria B: "Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed."

To achieve moderate condition, an increase in species per m2 is required. Examples of ways to increase the biodiversity of plants in a grassland include:

- Less frequent cutting
- Cutting in early spring to knock back dominant grasses, and an autumn cut
- Reducing nutrients by removing grass cuttings
- Consider native seeding to add species
- Varying the sward height

5.5.3 Grassland creation

Other neutral grassland is defined as a grassland where 'Perennial Rye-grass *Lolium perenne* is likely to be present at <30% with between 9 and 15 further species (m2) also present.'

To create other neutral grassland, it is crucial that nutrients are removed from the soil to encourage the growth of a greater variety of plant species. The same recommendations mentioned above in 5.6.2 are recommended here, with the addition of greater measures to reduce the nutrient levels, such as:

- Removing the nutrient rich topsoil layer by turf stripping or, for a gentler approach, scarification.
- Planting yellow rattle to control dominant grasses.

To reach the target condition of moderate, it is essential that the grassland passes Criteria A of the medium-high distinctiveness grassland condition assessment:

"The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present. "

Other management needed to maintain condition includes:

- Preventing scrub encroachment
- Preventing bare ground from exceeding 5 % cover
- Preventing species indicative of sub-optimal condition from exceeding 5% cover, such as Creeping Thistle, White Clover and Greater Plantain

Map 1. Maplin Way, Southend-on-Sea Baseline Habitats and Habitat Reference Locations

Red Line Boundary

Area Habitats Baseline
- Built linear features
- Introduced shrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- w1d - Wet woodland
- Ponds (non-priority habitat)

Individual tree Baseline
- Existing Large Rural Tree
- Existing Medium Rural Tree
- Existing Small Rural Tree

Habitat Refrences
G - Grassland
W - Woodland
P - Ponds

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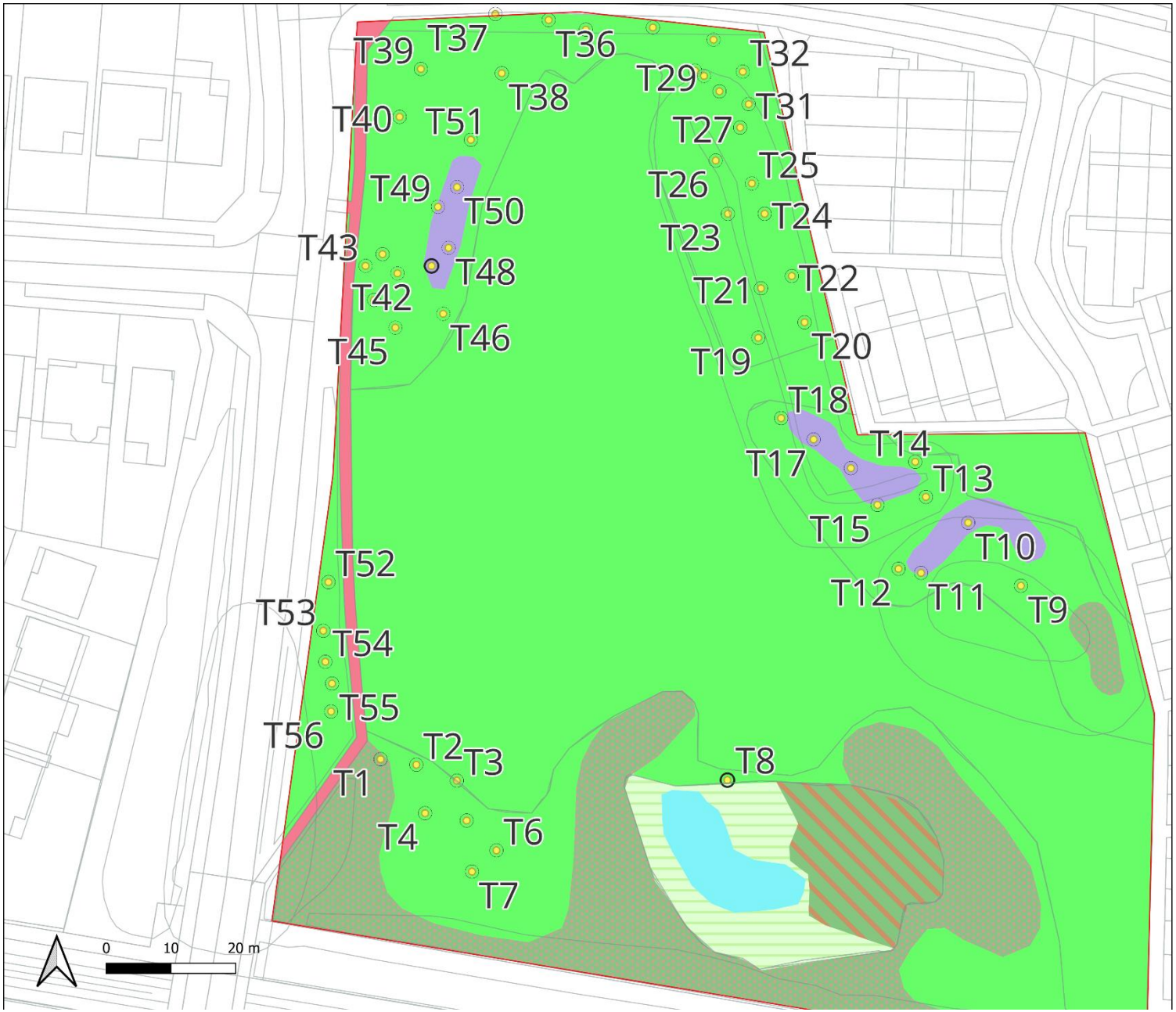

Map 2. Maplin Way,
Southend-on-Sea
Tree Reference Locations

Red Line Boundary

T1-T56 - Tree Target Notes

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Map 3. Maplin Way,
Southend-on-Sea
Baseline Habitat Conditions

Red Line Boundary

Baseline Habitat Condition
- Moderate
- Poor
- N/A - Other
- Condition Assessment N/A

Baseline Individual tree Condition
- Poor
- Moderate
- Good

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Map 4. Maplin Way, Southend-on-Sea Baseline Habitat Distinctiveness

Red Line Boundary

Baseline Habitat Distinctiveness
- High
- Medium
- Low
- V.Low

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Bibliography and References

The Statutory Biodiversity Metric (DEFRA) November 2023

UKHab Ltd (July 2023). UK Habitat Classification 2.0 (at https://www.ukhab.org)

Appendix 1: Photographs

Photograph 1. View of the site's grassland.

Photograph 2. Group of Scots Pines at the north-east corner of the site.

Photograph 3. Pond area, dry at time of survey, with other neutral grassland surrounding.

Photograph 4. Eastern edge of woodland W1.

Photograph 5. Wet woodland W2

Photograph 6. Woodland area W3.

Photograph 7. Introduced shrub area with trees.

Photograph 8. Newly planted trees in central grassland.