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4th April 2022   Our Ref: RT-MME-157100-03

Ecological Walkover Survey – Thames Young Mariners, Riverside Dr, London

Introduction
In February 2022, Pick Everard commissioned Middlemarch Environmental Ltd to undertake an ecological walkover survey at Thames Young Mariners, Richmond, southwest London. This assessment is required to inform a Biodiversity Net Gain Assessment associated with the proposed redevelopment of the site to create new guest accommodation, staff residences and associated facilities.

A Preliminary Ecological Appraisal has previously been undertaken by Surrey Wildlife Trust Ecology Services in November 2020 (Report 3974-1).

In addition, Middlemarch Environmental Ltd has been commissioned to undertake the following assessments:
- Preliminary Arboricultural Appraisal (RT-MME-157100-01);
- Arboricultural Impact Assessment (RT-MME-157100-02);
- Preliminary Bat Roost Assessment (RT-MME-157100-04);
- Badger Survey (RT-MME-157100-05); and,
- Biodiversity Net Gain Assessment (RT-MME-157100-06).

Ecological Walkover Methodology
A field survey was conducted following the Phase 1 Habitat Survey methodology of the Joint Nature Conservation Committee and the Institute of Environmental Assessment. Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. During the survey, a Habitat Condition Assessment was carried out to determine the ecological status of each habitat recorded. The condition assessment was assessed using published criteria in Panks et al. (2021), the details of which are presented in Appendix 1.

Calculating the On-Site Baseline
The site is separated into habitat parcels based on the Phase 1 Habitat Survey map. The metric differentiates between non-linear habitats (i.e., grassland, woodland) and linear habitats (i.e., hedgerows), for which a separate calculation is completed. The respective areas (in hectares) of each habitat parcel and respective lengths (in kilometres) of linear features are calculated in Geographical Information System (GIS) mapping software and entered into the calculator tool.

The Biodiversity Metric 3.0 calculator tool utilises the UK Habitat Classification System (UKHab) as the standard data input for habitats. The Phase 1 Habitat Survey data for the site was subsequently converted for the purposes of the metric calculation using the Phase 1 habitats to UKHab translation feature included in the Biodiversity Metric 3.0 calculator tool or professional opinion.

Each habitat or linear feature recorded within the site is assigned a score for 'Distinctiveness', 'Condition' and 'Strategic Significance':

- **Distinctiveness –** An automated score based on the type of habitat present and its value to wildlife. Highly diverse habitats such as those listed as Habitats of Principal Importance under the NERC Act (2006) or Annex 1 habitats in the Habitats Directive (1992) score highly in this category whilst highly modified and low diversity habitats such as arable crops will have low distinctiveness scores.
- **Condition –** A score based on the quality of the habitat parcel. Habitat condition values used in this report are taken from Middlemarch-Environmental Ltd Report RT-MME-156011-01; and,
- **Strategic significance** – A score based on information set out in local plans or policies. In this instance, a strategic location was defined as areas identified as Biodiversity Opportunity Areas, Wildlife Corridors or Biological Notification Sites in the London Borough of Richmond Biodiversity Action Plan[1].

The value of each habitat parcel (or linear feature) is presented in terms of habitat (or hedgerow/river) 'units'.

Results

The ecological walkover survey was undertaken on the 2nd March 2022 by Will Rees (Senior Ecological Consultant) and Beth Stacey (Ecological Project Officer). The weather conditions at the time of the survey are detailed in Table 1.

Parameter	Conditions
Temperature (oC)	8
Cloud (%)	100
Wind (Beaufort)	Light rain
Precipitation	F2

Table 1: Weather Conditions

Constraints

At the time of the survey, the north-western portion of the site was overgrown with dense scrub, including bramble thickets. Consequently, a detailed inspection of this portion of the site could not be undertaken. March is generally considered to be a suboptimal time to identify higher plants and invasive species. Due to the nature of habitats recorded on site, this is not considered a significant constraint to a robust assessment of the site's biodiversity value.

Habitats

The following habitats were recorded on site during the field survey visit:

- Amenity Grassland;
- Buildings;
- Dense Scrub;
- Plantation Woodland Broadleaved;
- Poor Semi-improved Grassland;
- Hardstanding;
- Introduced Shrub;
- Semi-natural Broadleaved Woodland;
- Scattered Trees;
- Species-poor Hedgerow;
- Standing Water; and
- Tall Ruderal.

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[1] London Borough of Richmond upon Thames Biodiversity Action Plan. Available: https://habitatsandheritage.org.uk/wp-content/uploads/2020/10/Biodiversity-Action-Plan-Richmond_compressed.pdf

Amenity Grassland
Closely mown amenity grassland with a low species diversity. The sward was comprised of dominant fescue *Festutica sp.* species with abundant perennial ryegrass *Lolium perenne*, frequent cock's foot *Dactylus glomerata* and occasional annual meadow grass *Poa annua* and meadow foxtail *Alopecurus pratensis.* Forb growth was species poor and included frequent common daisy *Bellis perennis,* ribwort plantain *Plantago lanceolata*, yarrow A*chillea millefolium*, occasional bristly oxtongue *Helminthotheca echioides*, dandelion *Taraxacum officinale*, hedge mustard *Sisymbrium officinale*, white clover *Trifolium repens,* ragwort *Jacobaea vulgaris*, herb Robert *Geranium robertianum*, slender speedwell *Veronica filiformis* and geranium species *Gerarium sp*.

Buildings
A series of series of single storey buildings with associated hardstanding access roads within the south-western portion of the site.

Dense Scrub
DS1
Bramble *Rubus* agg. scrub with scattered holly *Ilex aquifolium*, elder *Sambucus nigra* and holm oak *Quercus ilex.* English ivy, old man's beard *Clematis vitalba*, cleavers *Galium aparine*, green alkanet *Pentaglottis sempervirens* and cow parsley *Anthriscus sylvestris* were frequently within the scrub. Sections of the scrub had been recently cleared and cut back, but the scrub generally formed dense thickets along the site boundaries.

DS2
Mixed scrub along the southern bank of the lake. The habitat comprised dominant bramble and goat willow *Salix caprea* with butterfly bush *Buddleja davidii* and elder frequent. Other species included holm oak, robinia *Robinia pseudoacacia*. Old man's beard and cow parsley dominated the ground flora within false-oat grass and green alkanet present within more open areas of the habitat. Scattered semi mature and mature trees were present within the habitat.

DS3
Mixed scrub to the north of the lake. The habitat comprised mixture of bramble thickets, hawthorn *Crataegus monogyna*, goat willow, elder and crack willow *Salix fragilis* with a range of self-set scattered trees including ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. Ground flora was broadly consistent with parcel DS1, however, large stands of Japanese knotweed *Reynoutria japonica* were observed within the habitat.

No access
At the time of the survey, the north-western portion of the site was overgrown with dense scrub, including bramble thickets. Consequently, a detailed inspection of this portion of the site could not be undertaken. The habitat was viewed from the adjacent footpath and is considered to be broadly consistent with DS3 in composition. Reference to satellite imagery indicates a large portion of the habitat was cleared in the early 2010s.

Hardstanding
Hardstanding access roads and footpaths were recorded within the southern portion of the site. Other artificial surfaces included areas of gravel and a wood chip play areas.

Introduced Shrub
Introduced shrub beds within residential gardens. Cherry laurel *Prunus laurocerasus* was frequent with a small variety of ornamental shrub and herb species.

Plantation Woodland Broadleaved
BW1

Woodland of relatively recent origin in the south-west corner of the site. Reference to historic maps indicates the woodland was planted within the last century.

The canopy comprised dominant mature to semi mature hawthorn. A linear band of robinia trees were present within the north-eastern corner of the woodland. The canopy cover was continuous. Shrub layer comprises sparse snowberry *Symphoricarpos alba*, young hawthorn, elder and bramble. Ground flora comprised dominant lesser periwinkle *Vinca minor* with abundant cleavers, cow parsley and green alkanet. Burdock *Arctium lappa*, variegated yellow archangel *Lamium galeobdolon subsp. argentatum* and Spanish bluebell *Hyacinthoides hispanica* were also noted frequently with lords and ladies occasional. Frequent deadwood and large areas of brash and urban debris were also noted within the habitat. The woodland parcel is subject to high levels of recreational pressure.

BW2
A small copse along the southern boundary of relatively recent origin. Reference to historic maps indicates the woodland was planted within the last century.

The canopy cover was continuous and comprised dominant wild cherry with scattered ash and crab apple *Malus sylvestris*. The shrub layer comprised, goat willow, elder, holm oak and bramble scrub. Ground flora included dominant cow parsley with ivy frequent and occasional common nettle and common hogweed. No bare ground was present, occasional deadwood was noted.

BW3
A parcel of woodland within the south-east corner of the site of relatively recent origin. Reference to historic maps indicates the majority of the woodland was planted within the last century with the exception of two mature oak trees are present within the woodland which are significantly older.

The wider canopy was characterised by a mixture of semi mature ash, oak *Quercus robur*, sycamore, hawthorn and wild cherry *Prunus avium*. The western section of the parcel had a sparse shrub layer comprising bramble and elder. Ivy was dominant at ground level with occasional cow parsley and common hogweed *Heracleum sphondylium*. The eastern portion of the parcel comprises a copse of semi mature plum *Prunus domestica*, with occasional silver birch *Betula pendula*, hawthorn, ash and sycamore. Honeysuckle *Lonicera periclymenum*, snowberry and *Cotoneaster franchetti* were present within the woodland, but the shrub layer was generally absent. The woodland is used as a natural play area and large portions of the ground were bare. A series of deadwood piles, bug hotels and brash piles were noted across the parcel. Woodland planters with daffodils *Narcissus pseudonarcissus*, tulips *Tulipa sp.* and crocuses *Crocus sp.* were also present.

BW4
A parcel of woodland along the eastern extend of the lake, of relatively recent origin. Reference to historic maps indicates the woodland was planted within the last century.

The canopy comprised semi-mature plum and non-native cherry plum *Prunus cerasifera*, with occasional blackthorn *Prunus spinosa*, silver birch, ash and sycamore. Elder and honeysuckle were present within the woodland. Scattered mature willow trees were present along the edge of the lake. The shrub layer was generally sparse with snowberry noted across the woodland. The parcel was used as a natural play area and large portions of the ground was bare as a result of recreational pressure. A series of deadwood piles and brash piles were noted across the woodland. Ground flora along the woodland edges comprised cow parsley, cleavers and ivy with occasional Lords and ladies and common hogweed. An earth pile with dead wood was noted at the woodland entrance. Cyclamen *Cyclamen sp.*, stinking hellebore *Helleborus foetidus* and daffodils were growing within the earth pile. Bat boxes were present on woodland trees and invertebrate features were scattered throughout the woodland.

Poor Semi-improved Grassland

SI1

A fenced off area of infrequently managed grassland to the south of the lock. The sward varies between 10-30cm. Tree. The species composition was broadly similar to the amenity grassland however, cow parsley and green alkanet were abundant within the habitat. Brash piles were also present within the habitat.

SI2

Longer sward grassland along the sloped banks providing access to the lake. The sward height was 20 cm at time of survey. The species composition was similar to the amenity grassland habitat with a greater abundance of forbs including frequent green alkanet, yarrow, creeping thistle *Cirsium arvense*, sorrel *Rumex acetosa*, broad leaved Dock *Rumex obtusifolius*, dead nettle *Lamium album* and *Geranium sp.*.

Semi-natural Broadleaved Woodland

SNBW1

A linear band of woodland to the north-east of the lake. Reference to historical maps indicates the woodland is semi-natural in origin. The habitat forms part of a broader parcel of woodland to the north associated with Ham Lands. The parcel falls within the Priority Habitat Inventory for Deciduous Woodland.

The majority of the canopy trees generally semi mature was mixed and comprised semi-mature and mature hawthorn, sycamore, ash, wild cherry, willow species and oak. Canopy trees were generally semi mature with smattered mature trees. The shrub later comprised bramble, snowberry and regenerating young trees. Ground flora was dominated by ivy with, cow parsley, wood avens *Geum urbanum*, Spanish bluebells and daffodil noted occasionally. Areas of false-oat grass, Yorkshire fog, pendulous sedge *Carex pendula* and false brome *Brachypodium sylvaticum* were present within woodland clearings. Stands of Japanese knotweed were noted along the lake edge.

Scattered Trees

Scattered trees over amenity grassland and along the southern boundary of the lake. Trees were generally semi-mature to mature and in good condition. Species included willow sp. Indian horse chestnut *Aesculus indica*, sycamore, Lombardy poplar *Populus nigra*, hybrid black polar *Populus canadensis*, hawthorn, field maple *Acer campestre*, apple, English oak, ash, pear *Pyrus sp*, wild cherry and robinia.

ST1

A small group of trees including crab apple and hawthorn over amenity grassland located in the south-east corner of the site. The trees were in good condition and the area was used for recreation.

Species-poor Hedgerow

H1

A tree line comprising young sycamore trees growing along the southern boundary of the lake.

H2

A species-poor hedgerow along the eastern site boundary. The hedgerow was heavily pruned, 4 m tall and 1 m wide at the base. Non-native cherry plum was dominant within the hedgerow with plum also present. Scatted other woody species included holm oak, elder and blackthorn. The hedgerow was heavily shaded by the adjacent woodland and ground flora at base of the hedgerow comprised shade tolerant cow parsley, nettle, ivy and cleavers with occasional lord's and ladies noted. Woodland habitat falls to the west of hedgerow with a grass verge to the east.

Standing Water

A large lake within a former gravel pit. The lake has moderate physical naturalness, with generally steep earth banks across 2/3 of the shore. Areas where banks have been modified and reinforced comprise

less than 1/3 and include vertical concrete banks in the south-west corner of the lake. The northern side of the lake is fringed by an expanse of scrub and woodland. The southern side has a narrow band of scrub along the steep banks. The lake is connected to the river Thames via a lock in the south-western corner and the water level fluctuates significantly based on the tide.

At the time of the survey no significant aquatic vegetation was noted with the exception of Japanese knotweed which was occasionally emerging from the water's edge. Bankside vegetation largely comprised mixed scrub and woodland habitat, as described previously, with a series of willow trees overshading the waters edge. Large stands of Japanese knotweed were also noted across the banks of the lake, some of which was under ongoing treatment. This overshading, combined with the steep lake banks and the prevalence of Japanese knotweed provides limited opportunities for marginal vegetation growth across the lake edge. Tussocks of pendulous sedge were noted along the water's edge in the north-west corner of the lake where banks were shallower.

Tall Ruderal
TR1
Ruderal vegetation along the site edges comprising dominant cow parsley, with frequent common nettle, common hogweed, dead nettle and ground-ivy *Glechoma hederacea*.

TR2
Stands of Japanese knotweed with scattered bramble along the banks of the lake.

Table 2 summarises the extent and ecological condition of the habitats which were recorded on site during the field survey visit.

Phase 1 Habitat	Polygon / Line Ref.	UKHab Habitat Equivalent	Area (ha) / Length (km)	Description (distinctiveness, condition, connectivity and strategic significance)	Value (Biodiversity Units)
Area Based Habitats					
Amenity Grassland	AG1	Grassland – Modified Grassland	1.78	Habitat is automatically classed as being of 'Low' distinctiveness. Assessed against the low-quality grassland condition criteria the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	4.10
Buildings And Hardstanding	N/A	Developed Land; Sealed Surface	0.78	Habitat is automatically classed as being of 'Very low' distinctiveness, and due to its lack of habitat attributes is not assigned a condition score. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.00
Dense Scrub	DS1	Heathland And Shrub – Bramble Scrub	0.11	Habitat is automatically classed as being of 'Medium' distinctiveness and 'Poor' condition. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.52

Table 2: Summary of Existing Habitats and Linear Features (Continues).

Phase 1 Habitat	Polygon / Line Ref.	UKHab Habitat Equivalent	Area (ha) / Length (km)	Description (distinctiveness, condition, connectivity and strategic significance)	Value (Biodiversity Units)
	DS2	Heathland And Shrub – Mixed Scrub	0.08	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the scrub condition criteria, the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.36
	DS3	Heathland And Shrub – Mixed Scrub	0.73	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the scrub condition criteria, the habitat has been assigned a condition of 'Moderate. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	6.75
	No Access	Heathland And Shrub – Mixed Scrub	0.55	Habitat is automatically classed as being of 'Medium' distinctiveness. The parcel was not accessible to inspect in detail. As such, the habitat has been assigned a precautionary condition of 'Good'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	7.55
Introduced Shrub	N/A	Urban – Introduced Shrub	0.02	Habitat is automatically classed as being of 'Low' distinctiveness and 'Poor' condition. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.04
Plantation Woodland Broadleaved	BW1	Other Woodland – Broadleaved	0.11	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the woodland condition criteria, the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.50
	BW2	Other Woodland – Broadleaved	0.04	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the woodland condition criteria, the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.18
	BW3	Other Woodland – Broadleaved	0.24	Habitat is automatically classed as being of 'Medium' distinctiveness.	2.23

Table 2: Summary of Existing Habitats and Linear Features (Continues).

Phase 1 Habitat	Polygon / Line Ref.	UKHab Habitat Equivalent	Area (ha) / Length (km)	Description (distinctiveness, condition, connectivity and strategic significance)	Value (Biodiversity Units)
				Assessed against the woodland condition criteria, the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	
	BW4	Other Woodland – Broadleaved	0.38	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the woodland condition criteria, the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	3.47
Poor Semi-improved Grassland	SI1	Grassland - Other Neutral Grassland	0.06	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the grassland condition criteria, the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.55
	SI2	Grassland - Other Neutral Grassland	0.01	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the grassland condition criteria, the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.13
Semi-natural Broadleaved Woodland	SNBW1	Lowland Mixed Deciduous Woodland	0.37	Habitat is automatically classed as being of 'High' distinctiveness. Assessed against the woodland condition criteria the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	2.55
Scattered Trees	ST1	Urban – Urban Tree	0.03	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the urban trees condition criteria the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is	0.32

Table 2: Summary of Existing Habitats and Linear Features (Continues).

Phase 1 Habitat	Polygon / Line Ref.	UKHab Habitat Equivalent	Area (ha) / Length (km)	Description (distinctiveness, condition, connectivity and strategic significance)	Value (Biodiversity Units)
				assigned a high strategic significance.	
	N/A	Urban – Urban Tree	0.22	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the urban trees condition criteria the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	2.06
Standing Water	N/A	Lakes – Other Eutrophic Standing Water Lakes - Reservoir within Metric 3.0 due to the lack of a suitable alternative.	3.85	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the lake habitat condition criteria the habitat has been assigned a condition of 'Moderate'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	35.39
Tall Ruderal	TR1	Grassland - Other Neutral Grassland	0.02	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the grassland condition criteria, the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.07
	TR2	Grassland - Other Neutral Grassland	0.03	Habitat is automatically classed as being of 'Medium' distinctiveness. Assessed against the grassland condition criteria, the habitat has been assigned a condition of 'Poor'. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.14
Total Area (Ha) *			**9.15#**	**Total Site Baseline (Biodiversity Units)**	**66.91#**
Hedgerows					
Species-poor Hedgerow	H1	Hedgerow – Line of Trees associated with Bank or Ditch	0.02	Habitat is automatically classed as being of 'Low' distinctiveness and is assessed as being in 'Poor' condition against the line of trees condition criteria. The survey area is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	0.05
	H2	Hedgerow – Hedge Ornamental Non Native	0.07	Habitat is automatically classed as being of 'Very Low' distinctiveness and is automatically assigned a condition of 'Poor'. The survey area	0.08

Table 2: Summary of Existing Habitats and Linear Features (Continues).

Phase 1 Habitat	Polygon / Line Ref.	UKHab Habitat Equivalent	Area (ha) / Length (km)	Description (distinctiveness, condition, connectivity and strategic significance)	Value (Biodiversity Units)
				is designated as Metropolitan Open Land. Therefore, the habitat is assigned a high strategic significance.	
Total Length (KM)			**0.09**[#]	**Total Site Baseline (Linear Units)**	**0.13**[#]
Key * Habitat area not included in total area [#] Figure extracted from Metric 3,0. Apparent inconsistencies in the totals are a result of rounding within the Metric.					

Table 2: Summary of Existing Habitats and Linear Features

<u>**Discussions and Conclusions**</u>

It is proposed to redevelop the site to create new guest accommodation, staff residences and associated facilities.

Table 3. provides a key summary of the Ecological Constraints and Opportunities associated with the proposed development with regards achieving measurable Biodiversity Net Gain.

Feature	Constraints	Opportunities
Very Low Distinctiveness Habitats		
Buildings Hardstanding	Compensation is not required for loss of developed land; sealed surfaces.	The existing area of buildings and hardstanding presents limited biodiversity value. Opportunities to enhance the newly proposed built development include the incorporation of green roofs, living walls, bat and bird boxes.
Low Distinctiveness Habitat		
Amenity Grassland Introduced Shrub	Habitat trading requirements within Metric 3.0 require provision of "Same distinctiveness or better habitat" to be provided. It is anticipated that areas of amenity grassland and introduced shrub within the south-west corner of the site will need to be lost to facilitate the development.	Loss of amenity grassland and introduced can be compensated for through the provision of areas of other neutral grassland and native shrub thickets within the wider site. This could be achieved through creation of wildflower grassland with areas of existing amenity grassland and the adoption of a relaxed hay meadow management regime. The provision of linear bands of wildflower grassland along the edge of the lake and woodland habitat will improve the quality of the edge habitat.

Table 3. Summary of Ecological Constraints and Opportunities (Continues)

Feature	Constraints	Opportunities
Medium Distinctiveness Habitat		
Dense Scrub Plantation Woodland Broadleaved Poor Semi-improved Grassland Scattered Trees Species-poor Hedgerow Standing Water Tall Ruderal	Habitat trading requirements within Metric 3.0 require provision of: "Same broad habitat or a higher distinctiveness habitat required". Proposals should be designed to retain and protect medium distinctiveness habitats wherever feasible as they contribute to the structural diversity of the site. It is not anticipated that the lake will be significantly impacted by proposals, however the development should be designed to ensure the condition of the habitat is not reduced. If retention of native scrub habitat to the north of the lake is not feasible any clearance should be compensated for with native scrub thickets to maintain structural diversity within the site. Small scale clearance of scattered tree or plantation woodland habitat may be compensated for through enhancement of other areas of retained woodland, however proposals should aim to ensure a net gain in canopy cover on a site scale.	Opportunities to enhance existing habitats generally include targeted management of invasive species within the site including Japanese knotweed and variegated yellow archangel, species listed on schedule 9, Part II of the Wildlife and Countryside Act in England and Wales 1981. Green alkanet, cherry laurel, snowberry, Spanish bluebell, Robinia, holm oak and butterfly bush are species identified on the London Invasive Species Initiative inventory as species of concern. A large portion of the southern portion of the site currently comprises intensively managed amenity grassland. It is recommended that the habitat is enhanced targeting other - neutral grassland – moderate condition. The site's linear feature biodiversity value is relatively poor relative to its habitat value. Enhancement opportunities include the creation of native species-rich hedgerows along site boundaries. Native Hedgerows can also be provided within the built areas of the site in place of fences and hard landscaping features.
High Distinctiveness Habitats		
Semi-natural Broadleaved Woodland	Habitat trading requirements within Metric 3.0 require provision of the same habitat. Proposals should be designed to retain and protect the Semi-natural Broadleaved Woodland wherever feasible.	The Semi-natural Broadleaved Woodland on site is currently considered to be in 'Poor' condition when assessed against the woodland habitat type condition assessment. It is anticipated that the habitat can be enhanced to 'Moderate' condition through the adoption of an appropriate Woodland Management Plan and the management of invasive species within the habitat.

Table 3. Summary of Ecological Constraints and Opportunities

Recommendations

The recommendations below are based on Middlemarch Environmental's current understanding of the project. If works are changed in any way these recommendations will need to be amended if appropriate.

R1 **Inaccessible Area:** An inspection of the north-western corner of the site could not be undertaken due to dense scrub growth. As such a precautionary condition has been assigned. A detailed condition assessment should be undertaken of the area if significant habitat loss is projected. This will require sensitive vegetation clearance to provide access.

R2 **Japanese Knotweed and Variegated Yellow Archangel**: These species are listed on schedule 9, Part II of the Wildlife and Countryside Act in England and Wales 1981. To ensure that the works do not cause the species to spread, and all stands are accurately mapped, an Invasive Species survey should be completed, and a Method Statement should be developed in consultation with the Environment Agency. The optimal time for survey is between April and September.

R3 **HEMP:** A Habitat Enhancement and Management Plan (HEMP) should be produced for all habitats and hedgerow features proposed within the site. The HEMP should set out the appropriate establishment works, and management prescription required to achieve and maintain the intended type and condition of each habitat /hedgerow feature. The HEMP should cover a minimum period of 30 years and include provisions for monitoring, review, reporting and contingency throughout.

I trust that this assessment meets your requirements, however if you have any further queries please do not hesitate to contact me.

Yours sincerely,
For and On Behalf of Middlemarch Environmental Ltd.

Will Rees
Ba (Hons) MSc ACIEEM
Senior Ecological Consultant

Checked & Approved By

Paul Roebuck
MSc MCIEEM
South East Manager

Photographs

Plate 1: AG1

Plate 2: Buildings and Hardstanding

Plate 3: DS1

Plate 4: DS2

Plate 5: DS3

Plate 6: No Access

Plate 7: Introduced Shrub

Plate 8: BW1

Plate 9: BW2

Plate 10: BW3 – West

Plate 11: BW3 - East

Plate 12: BW4

Plate 13: SI1

Plate 14: SI2

Plate 15: SNBW1

Plate 16: Scattered Trees

Plate 17: Standing Water

Plate 18: TR1

Plate 19: TR2

Plate 20: H1

Plate 21: H2

Drawings

Drawing C157100-03-01 – Phase 1 Habitat Map

Target Notes:
1. Temporary structure
2. Wood chip play surface
3. Holm oak
4. Robinia
5. Bee hive
6. Japanese knotweed
7. Brash and log pile
8. Dead standing tree
9. Cherry laurel
10. Deadwood
11. Invertebrate feature
12. Bat box
13. Pontoon
14. Variegated yellow archangel

C157100-03-01

Legend

- – – – Site boundary
- ● Scattered tree
- —— Species-poor intact hedgerow
- [A] Amenity grassland
- ■ Building
- ▨ Dense scrub
- ▨ Hardstanding
- ▨ Introduced shrub
- ▨ No access
- ▢ Other habitat
- ▨ Plantation broad-leaved woodland
- [SI] Poor semi-improved grassland
- ▨ Scattered trees
- ▨ Semi-natural broad-leaved woodland
- ▨ Standing water
- ▨ Tall ruderal
- ◉ Target note

Project	Thames Young Mariners, Richmond, London
Drawing	Phase 1 Habitat Map
Client	Pick Everard

Drawing Number	Revision
C157100-03-01	00
Scale @ A3	Date
1:1.600	March 2022
Approved By	Drawn By
WR	VO/CD

MIDDLEMARCH

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Appendix A

Habitat Condition Assessment

Table 1 and 2 summarise the results of the habitat condition assessment for area-based habitats and hedgerows respectively. For the detailed condition criteria for each habitat, see Panks *et al.* (2021)[2].

Phase 1 Habitat	Polygon / Line Ref.	UK Hab Equivalent	Condition Sheet	Condition Criteria Score													Total Score	Condition Assessment
				C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13		
Amenity Grassland	AG1	Grassland – Modified Grassland	5. Grassland Habitat Type (low distinctiveness)	F	F	P	F	F	P	P	-	-	-	-	-	-	3/7	Poor
Buildings And Hardstanding	N/A	Developed Land; Sealed Surface	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
Dense Scrub	DS1	Heathland And Shrub – Bramble Scrub	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Poor
	DS2	Heathland And Shrub – Mixed Scrub	19. Scrub Habitat type	P	P	F	F	F	-	-	-	-	-	-	-	-	2/5	Poor
	DS3	Heathland And Shrub – Mixed Scrub	19. Scrub Habitat type	P	P	F	P	P	-	-	-	-	-	-	-	-	4/5	Moderate
	No Access	Heathland And Shrub – Mixed Scrub	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Good

Table 1. Summary of Condition Assessment for Habitats (Continues)

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[2] Panks, S., White, N., Newsome, A., Potter, J., Heyton, M., Mayhew, E., Alvarez, M., Russell, T., Scott, S.J., Heaver, M., Scott, S.H., Treweek, J., Butcher, B. and Stone, D. (2021) T*he Biodiversity Metric 3.0 – Auditing and accounting for biodiversity: Technical Supplement.* Natural England

Phase 1 Habitat	Polygon / Line Ref.	UK Hab Equivalent	Condition Sheet	Condition Criteria Score													Total Score	Condition Assessment
				C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13		
Introduced Shrub	N/A	Urban – Introduced Shrub	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Poor
Plantation Woodland Broadleaved	BW1	Other Woodland – Broadleaved	24. Woodland Habitat type	2	3	1	2	2	3	2	2	1	1	1	3	1	24/39	Poor
	BW2	Other Woodland – Broadleaved	24. Woodland Habitat type	1	3	3	2	2	3	2	2	1	1	1	1	2	24/39	Poor
	BW3	Other Woodland – Broadleaved	24. Woodland Habitat type	3	3	1	2	2	3	2	3	1	2	1	3	1	27/39	Moderate
	BW4	Other Woodland – Broadleaved	24. Woodland Habitat type	3	3	1	2	2	3	2	3	1	2	1	3	1	27/39	Moderate
Poor Semi-improved Grassland	SI1	Grassland - Other Neutral Grassland	6. Grassland Habitat Type (medium, high & very high distinctiveness)	F	P	P	P	F	-	-	-	-	-	-	-	-	3/5	Moderate
	SI2	Grassland - Other Neutral Grassland	6. Grassland Habitat Type (medium, high & very high distinctiveness)	F	P	P	P	F	-	-	-	-	-	-	-	-	3/5	Moderate
Semi-natural Broadleaved Woodland	SNBW1	Lowland Mixed Deciduous Woodland	24. Woodland Habitat type	2	1	1	2	2	3	2	2	1	2	1	2	2	23/39	Poor

Table 1. Summary of Condition Assessment for Habitats (Continues)

Phase 1 Habitat	Polygon / Line Ref.	UK Hab Equivalent	Condition Sheet	Condition Criteria Score													Total Score	Condition Assessment
				C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13		
Scattered Trees	ST1	Urban – Urban Tree	22. Urban Trees (including street trees) Habitat Type	P	P	F	F	P	P	-	-	-	-	-	-	-	4/6	Moderate
	N/A	Urban – Urban Tree	22. Urban Trees (including street trees) Habitat type	P	F	F	F	P	P	-	-	-	-	-	-	-	3/6	Moderate
Standing Water	N/A	Lakes – Other Eutrophic Standing Water Lakes - Reservoir within Metric 3.0 due to the lack of a suitable alternative.	13. Lake Habitat type	4	3	4	3	-	-	-	-	-	-	-	-	-	3.5/5 (1 = Most Natural / 5 = Least Natural)	Moderate
Tall Ruderal	TR1	Grassland - Other Neutral Grassland	6. Grassland Habitat Type (medium, high & very high distinctiveness)	F	P	F	F	F	-	-	-	-	-	-	-	-	1/5	Poor
	TR2	Grassland - Other Neutral Grassland	6. Grassland Habitat Type (medium, high & very high distinctiveness)	F	F	F	F	F	-	-	-	-	-	-	-	-	0/5	Poor
Species poor native hedgerow	H1	Line of Trees - Associated with bank or ditch	15. Line of Trees Habitat type	F	P	F	F	P	-	-	-	-	-	-	-	-	2/5	Poor

Key:
P – Criteria passed
F – Criteria failed

Table 1. Summary of Condition Assessment for Habitats

Phase 1 Habitat	Polygon / Line Ref.	UK Hab Equivalent	Criteria Score										Condition Assessment
			A1	A2	B1	B2	C1	C2	D1	D2	E1*	E2*	
Species poor hedgerow	H2	Hedge Ornamental Non Native	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Poor

Key:
*Applicable to hedgerows with trees only
P – Criteria passed
F – Criteria failed
N/A – Criteria not applicable

Table 2. Summary of Condition Assessment for Hedgerow