Biodiversity Net Gain Assessment

Tyler Grange

Land situated to the east of Brascote Lane and south of Arnold's Crescent

22 July 2024

TG Report No. 16602_R07_CA

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16602	R07	22 July 2024	-

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Summary

S.1. This report has been prepared by Tyler Grange Group Limited on behalf of Richborough Estates Ltd. It sets out the findings of a Biodiversity Net Gain Assessment completed in relation to a parcel of land situated to the east of Brascote Lane and south of Arnold's Crescent, Newbold Verdon (OS Grid Reference SK 44864 03304). The proposals are for a residential development of up to 135 dwellings with associated landscaping, open space, drainage infrastructure and associated works.

S.2. This report is an addendum to, and should be read in conjunction with, the Ecological Impact Assessment report (TG Reference 16602_R04a_EcIA_EJ_180724).

S.3. The baseline habitats on the site comprise grassland (modified and other neutral), wet woodland, and cropland, with native hedgerows, treelines and a watercourse bounding the site. The proposed development has been designed with consideration for the Mitigation Hierarchy, to firstly avoid impacts to ecologically valuable habitats where possible, before considering mitigation and compensation measures.

S.4. Areas of grassland and cropland will be lost to facilitate the proposed development, as well as two discrete areas of hedgerow and treeline, and watercourse, that will be removed and culverted, respectively. The proposals include a diverse scheme of habitat creation and enhancement, including new grassland creation, tree and hedgerow planting, structural shrub and scrub planting, and the creation of ecologically designed sustainable drainage (SuDS) basins.

S.5. The Statutory Biodiversity Metric has calculated that the proposed development will result in a total net biodiversity unit change of:

- -21.80 habitat units equating to -47.45%;
- +2.24 hedgerow units equating to +12.81%; and
- +0.52 watercourse units equating to +10.40%.

S.6. The trading rules of the metric are satisfied for hedgerows and watercourses, as same distinctiveness or better habitat will be achieved to offset for most of the losses. The trading rules are however failed for habitats, owing to the loss of areas of other neutral and modified grassland, which cannot be directly compensated through new habitat creation due to the limited space available within the site when accounting for the retention of more ecologically valuable habitats (namely wet woodland), and the required developable area.

S.7. The site as presented would be unable to deliver a measurable net gain as measured using the BNG metric. Considering the constraints to the layout and the fact the opportunities for biodiversity have been maximised with the proposals as far as possible, it should be possible to undertake biodiversity offsetting to compensate for losses, in accordance with Local Policy.

S.8. With the implementation of appropriate offsite compensation, it would be possible to secure an overall measurable biodiversity net gain for the site. The proposed development would therefore be in conformity with relevant planning policy and legislation.

Section 1: Introduction and Context

1.1. This report has been prepared by Tyler Grange Group Ltd on behalf of Richborough Estates Ltd. It sets out the findings of a Biodiversity Net Gain (BNG) assessment at land situated to the east of Brascote Lane and south of Arnold's Crescent, Newbold Verdon (OS Grid Reference SK 44864 03304).

1.2. The planning application boundary extends in total to 13.77ha hectares (hereinafter referred to as the "Combined Site"), which comprises the following:

- 6.91 hectares of land to the east of Brascote Lane and south of the Thurlaston Brook, which benefits from an extant planning permission under reference 22/00277/OUT, for the purpose only of providing access/egress to the public highway known as Brascote Lane (Phase 1); and;

- 6.86 hectares of land to the south of Arnold's Crescent and north of the Thurlaston Brook, for up to 135 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Brascote Lane (Phase 2).

1.3. On the basis that Phase 1 has the benefit of planning permission, the scope of this BNG report focusses upon an outline planning application for Phase 2, hereinafter referred to as the 'site'. The combined site is shown in **Figure 1.1**, below. Proposals for the site associated with this BNG assessment are illustrated in **Appendix 1**.

Figure 1.1: Phased Boundary Plan, with the site area to be considered as part of this EcIA highlighted in pink, and Phase 1 portion highlighted grey.

1.4. This report is an addendum to, and should be read in conjunction with, the Ecological Impact Assessment (EcIA) report (TG Reference 16602_R04a_EcIA_EJ_180724).

1.5. A BNG assessment for the site was undertaken by Tyler Grange in July 2024 using Defra's latest BNG Metric (The Statutory Biodiversity Metric) which should be looked at in conjunction with this report (ref: 16602_080724_ The Statutory Biodiversity Metric).

1.6. The design of the scheme has been informed by the BNG assessment process and the mitigation hierarchy, through avoiding impacts to habitats where possible, then minimising the impact, using mitigation, and finally compensating for a loss of habitat where this cannot be avoided.

Context

1.7. The site is located to the south of the village of Newbold Verdon. The site is approximately 6.86 hectares in size and predominantly comprises a grassland field (modified and neutral grassland), wet woodland, and scattered mature trees. A stream (Thurlaston Brook) flows east to west along the southern boundary of the site, which is lined with a native treeline on the northern embankment, and a species rich native hedgerow on the southern embankment. The eastern and northern boundaries are also bounded with native hedgerows.

1.8. The site is immediately surrounded by residential gardens and development to the north, allotments to the west, arable farmland to the south, and further grassland (including amenity cricket pitches) to the east. The wider landscape primarily comprises the residential area of Newbold Verdon and agricultural land.

1.9. Aerial imagery, which is publicly available on Google Earth (see **Figure 1.2** below) is considered to be in date, and generally representative of the current state of the onsite habitats.

Figure 1.2 Site boundary for the residential development.

Aims and objectives

1.10. The aim of this report is to provide findings of the BNG calculation and assessment undertaken to accompany the project. The objectives of this process are outlined below with the assessment methodology detailed in **Appendix 2**:

- Demonstrate the application of the mitigation hierarchy through the design evolution of the site to inform the design of the scheme and to minimise impacts on biodiversity where possible;
- Calculate the project's pre- and post-development biodiversity unit value ;
- Determine the change in biodiversity units as a result of the proposed development and proposed on site enhancements for biodiversity; and
- Advise on how the project can deliver a minimum of +10% BNG.

1.11. This BNG assessment has been undertaken with respect to the British Standard for BNG BS8683:2020 and this report follows the CIEEM BNG reporting guidance[1] and was completed with reference to the CIRIA BNG good practice principles for development[2].

Legislation and Planning Policy

1.12. The National Planning Policy Framework (NPPF) (Section 15, Paragraph 180) requires the planning system to aim to "contribute to and enhance the natural environment by: minimising impacts on and providing net gains for biodiversity, by establishing coherent ecological networks that are more resilient to current and future pressures minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures". Section 15, Paragraph 185 of the revised NPPF also promotes development to "identify and pursue opportunities for securing measurable net gains for biodiversity".

1.13. The Environment Act, which came into force on the 12th February 2024 through changes to the Twon and Country Planning Act also requires 10% BNG uplift as a result of development.

Mitigation hierarchy and good practice principles

1.14. The proposals for the site have been developed with reference to the ecological mitigation hierarchy which is central to the BNG process. This was applied by advising avoidance of damage to habitats, then minimising the impact and using mitigation, and finally compensating for a loss of habitat (see **Section 2**). Advice was provided throughout the project to inform the development and landscape design to adhere to this and to advise on measures required to achieve a minimum of +10% BNG (see Legislation and Planning Policy above).

1.15. The CIRIA BNG good practice principles for development[3] (which include the mitigation hierarchy) were also applied at all stages of the assessment.

Quality assurance

1.16. All ecologists at Tyler Grange Group Ltd are members of CIEEM, or are working towards membership, and act under the direction of members, and abide by the Institute's Code of Professional Conduct.

[1] CIEEM (2021). Biodiversity Net Gain Report and Audit Templates Chartered Institute of Ecology and Environmental Management, Winchester, UK.
[2] Baker, J. Hoskin, R. & Butterworth (2019). Biodiversity net gain: Good practice principles for development. A practical guide. Ciria, CIEEM & IEMA
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Section 2: Baseline Assessment

Strategic Significance

2.1. The site is not located within any statutory or non-statutory sites designation.

2.2. A potential local wildlife site, Newbold Verdon stream hedge, is located immediately adjacent to the site boundary (hedgerow H8). Potential LWS have not been formally assessed against the LWS selection criteria, and have not been formally adopted as notified LWS. As such, this habitat has been categorised as 'location ecologically desirable, but not in local strategy'. No further statutory or non-statutory sites designations were located within the site.

Baseline Habitats

2.3. The habitats present on site are summarised below in **Table 2.1**, along with a description of the composition of the main plant species present. The location of habitats are shown on the Baseline Habitat Features Plan (**Ref: 16602/P13a**).

2.4. The results of the habitat surveys were used to inform the completion of condition assessments for all habitats, which were completed with reference to The Statutory Biodiversity Metric User Guide.[4]

2.5. A summary of the BNG assessment of the baseline habitats is detailed below in **Table 2.2** and **Table 2.3**. This includes their BNG unit value as calculated through the BNG metric (ref: 16602_080724_ The Statutory Biodiversity Metric).

[4] DEFRA (2023) The Statutory Biodiversity Metric User Guide. 2023

Table 2.1. Habitats and Flora

Habitat Type (UKhab)	Description and Species	Photograph
Modified grassland g4	Modified grassland dominates the site. This habitat appeared to be managed through regular cutting, with evidence present of a previous grazing regime. Sward height varied between 7 – 20 cm. The species identified within this habitat include perennial rye-grass *Lolium perenne*, Yorkshire fog *Holcus lanatus*, cock's-foot *Dactylis glomerata*, ribwort plantain *Plantago lanceolata*, cow parsley *Anthriscus sylvestris*, hogweed *Heracleum sphondylium*, nettle *Urtica dioica*, bramble *Rubus fruticosus*, germander speedwell *Veronica chamaedrys* and daffodil *Narcissus pseudonarcissus*.	
Other Neutral Grassland (g3c & g3c8)	Areas of other neutral grassland were recorded around the site boundaries, and were classified as 'other neutral grassland (g3c) and *Holcus-Juncus* neutral grassland (g3c8). In the northern sections of this site, this was characterised by more diverse grassland mix, including cocks'-foot, Yorkshire fog, broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, common mallow *Malva sylvestris*, hogweed, cow parsley and bramble. In the southern and western sections of the site, which were generally more inundated, the grassland was dominated by Yorkshire fog, cock's-foot, and soft rush *Juncus effusus*.	

		
Wet woodland w1d	Within the western corner of the site is an area of wet woodland, which at the time of survey was inundated with water. The wet woodland has limited bramble understorey with deadwood present. The bramble becomes dense within the north-western section of the habitat, which limited access at the time of survey. Species present in this habitat include alder *Alnus glutinosa*, crack willow *Salix fragilis*, goat willow *Salix caprea*, elder *Sambucus nigra*, soft rush, iris *Iris sp.*, bramble, cow parsley, and lords-and-ladies *Arum maculatum*.	

Native Hedgerow H2a	A total of 6 native hedgerows were recorded along the boundaries of the site. These were well managed through flailing. The hedgerows on site were c.2 m in height and 1 m in width, varying between 24 and 124 m in length. Species identified along the hedgerows include hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, holly *Ilex aquifolium* and ivy *Hedera helix*.	
Non-native and ornamental Hedgerow H2b	One ornamental hedgerow is located on site which is 4 m in height, 37 m in length and 1.5 m in width. The non-native hedgerow is comprised of Leyland cypress *Cupressus x leylandii*.	

Species Rich Native Hedgerow H2a5	An unmanaged hedgerow, with an associated stream (Thurlaston Brook), is located along the site's southern boundary, this hedgerow is 334 m in length, c.3 m in height and c.2 m in width. Species identified along the hedgerows include hawthorn, Blackthorn *Prunus spinosa*, holly, goat willow, hazel, field maple *Acer campestre,* yew *Taxus baccata*, pedunculate oak *Quercus robur* and common alder.	
Ecologically valuable Line of trees associated with bank or ditch w34	Along the southern boundary is a line of trees which runs along the stream (Thurlaston Brook). Species present in this habitat include alder, ash *Fraxinus excelsior*, crack willow, goat Willow, hawthorn, hazel and pedunculate oak.	

Rivers and streams r2b	Along the southern boundary of the site is a narrow flowing stream (Thurlaston Brook) located between the line of trees and the species rich native hedgerow. The stream is straight/sinuous with average sediment size of sand. The banks of the stream are predominantly earth and clay, with a varying slope on the embankment. The stream is heavily shaded, with no evident aquatic vegetation.	
Rural Trees	Three mature pedunculate oak trees are present within the centre of the site located in the grassland habitat.	

Table 2.2. Baseline Habitats and BNG Unit Value

Broad Habitat	Habitat Type	Area (ha)	Distinctiveness	Condition	BNG unit Value – Total
Grassland	Modified grassland	5.3125	Low	Good	31.88
Grassland	Other neutral grassland	1.3445	Medium	Moderate	10.76
Woodland and forest	Wet woodland	0.2621	High	Moderate	3.15
Cropland	Cereal crops	0.079	Low	N/A	0.16

Table 2.3. Baseline Hedgerows and BNG Unit Value

Hedge number	Hedgerow type	Length (km)	Distinctiveness	Condition	BNG unit Value – Total
H1	Native hedgerow	0.028	Low	Good	0.17
H2	Native hedgerow	0.092	Low	Good	0.55
H3	Native hedgerow	0.216	Low	Good	1.30
H4	Native hedgerow	0.072	Low	Good	0.43
H5	Native hedgerow	0.065	Low	Good	0.39
H6	Native hedgerow	0.145	Low	Good	0.87
H7	Non-native and ornamental hedgerow	0.037	Very Low	Poor	0.04
H8	Species rich native hedgerow with trees – associated with bank or ditch	0.334	Very High	Good	8.82
TL1	Ecologically valuable line of trees – associated with bank or ditch	0.413	Medium	Good	4.96

River Condition and Strategic Significance

2.6. The pre-development MoRPh survey and assessment returned a condition of moderate with an index score of 1.0325, see **Table 2.4**. The current baseline was found not to be encroaching on the river channel, however the was major encroachment from the agricultural land to the south into areas into the 10m riparian zone, with minor encroachment on the site side from regularly mown and/or grazed grassland. A full breakdown of the river condition assessment is available in Excel format on request.

Table 2.4. Results of MoRPh 5 River Survey Condition Assessment

MoRPh 5 Ref.	Positive Index Average	Negative Index Average	Preliminary Score (Positive index + Negative Index)	Condition
1	1.158	-0.231	0.927	Moderate
2	1.368	-0.231	1.138	Moderate

Proposals

2.7. The proposals for the site are for a development of up to 135 dwellings with associated landscaping, open space, drainage infrastructure and associated works (all matters reserved except access from Brascote Lane.

Mitigation hierarchy

2.8. The scheme has been designed to follow the mitigation hierarchy by avoiding ecological impacts as much as possible, with the majority of the development to be located within the habitats of lowers ecological importance, namely modified grassland. The wet woodland will be entirely retained, and the majority of the other neutral grassland will be retained. The boundary hedgerows and treelines and the watercourse will be retained within suitable buffers, with the exception of two discrete areas of removal and culverting to facilitate new access along the southern boundary.

2.9. Where impacts to habitats cannot be avoided, specific measures will be undertaken to mitigate and compensate any loss of habitats and impacts that occur, to ensure opportunities for wildlife are provided for the long-term, biodiversity increases, and an overall ecological enhancement occurs.

Habitat Loss

2.10. The development will result in the loss of modified and other neutral grassland and cropland within the development area. To facilitate the access into the site from the southern boundary, two discrete areas of hedgerow and treeline will be removed, and the corresponding sections of the watercourse will be culverted.

2.11. A summary of the BNG assessment of the baseline habitats is detailed below in **Table 2.5** and **Table 2.6**. This includes a breakdown of the habitats to be retained, enhanced and lost as part of the proposals, their condition and their BNG unit value as calculated through the BNG metric (ref: 16602_080724_ The Statutory Biodiversity Metric).

Table 2.5. Baseline Habitats and BNG Unit Value Summary

Broad Habitat	Habitat Type	Area (ha)	Distinctiveness	Condition	BNG unit Value – Total	BNG unit Value - Retained	BNG unit Value - Enhanced	BNG unit Value - Lost
Grassland	Modified grassland	5.3125	Low	Good	31.88	5.43	0	26.45
Grassland	Other neutral grassland	1.3445	Medium	Moderate	10.76	4.77	0	5.99
Woodland and forest	Wet woodland	0.2621	High	Moderate	3.15	3.15	0	0.0
Cropland	Cereal crops	0.079	Low	N/A	0.16	0	0	0.16

Table 2.6. Baseline Hedgerows and Lengths Retained and Enhanced

Hedge number	Hedgerow type	Length (km)	Distinctiveness	Condition	BNG unit Value – Total	BNG unit Value - Retained	BNG unit Value - Enhanced	BNG unit Value - Lost
H1	Native hedgerow	0.028	Low	Good	0.17	0.17	0.0	0.0
H2	Native hedgerow	0.092	Low	Good	0.55	0.55	0.0	0.0
H3	Native hedgerow	0.216	Low	Good	1.30	1.30	0.0	0.0
H4	Native hedgerow	0.072	Low	Good	0.43	0.43	0.0	0.0
H5	Native hedgerow	0.065	Low	Good	0.39	0.39	0.0	0.0
H6	Native hedgerow	0.145	Low	Good	0.87	0.87	0.0	0.0
H7	Non-native and ornamental hedgerow	0.037	Very Low	Poor	0.04	0.04	0.0	0.0
H8	Species rich native hedgerow with trees – associated with bank or ditch	0.334	Very High	Good	8.82	7.74	0.0	1.08
TL1	Ecologically valuable line of trees –	0.413	Medium	Good	4.96	4.46	0.0	0.49

	associated with bank or ditch							

Habitats Created, Retained and Enhanced

2.12. Post-development, appropriate compensatory planting/habitat creation will be implemented to reduce losses and create new habitats at the site that are not currently present, namely attenuation features, tree planting, shrub and scrub planting, and new grassland creation. The details of post-development planting are shown on **16602/P14a.** The measurements of the created and enhanced habitats as well as their conditions and BNG unit value are detailed in **Tables 2.7, Table 2.8** and **Table 2.9** below.

Habitat Creation, Retention and Enhancement

2.13. The proposed scheme will include new soft landscaping within the residential streetscape and public open spaces, including the following key enhancements to wildlife:

- Retention of features of the greatest ecological importance, namely wet woodland and mature rural trees, and the boundary hedgerows on the northern and eastern boundary. The watercourse, treeline and hedgerow to the southern boundary will be retained within ecological buffer areas, with the exception of discrete new access areas;

- Well defined buffer areas to the retained wet woodland, mature trees, boundary hedgerows, tree line and watercourse (with the exception of discrete new access areas), with the surrounding habitat to be retained and where possible enhanced through the creation of areas of new areas of grassland, tree planting, and structural scrub/shrub planting;

- An enhanced buffer to the Thurlaston Brook through the retention of the wet woodland and large areas of the neutral grassland along the southern boundary, and the creation of an ecological buffer zone with a mosaic of new grassland creation, tree planting, and structural scrub/shrub planting;

- Sustainable drainage system (SuDS) basins, which should be constructed in accordance with the CIRIA guidelines[5] for SuDS with regards to biodiversity. This would include a diverse range of native planting of known value to wildlife, particularly amphibians, reptiles, and invertebrates;

- Large areas of green public open space will be created, which will be managed for both amenity and biodiversity. The majority of the grassland habitats within the areas of open space will be retained from the existing habitats where possible, with newly created grassland areas to be sown with a species diverse general purpose meadow mixture. In the areas closest to the residential development and associated roadways and footpaths, this will be managed primarily for visual and amenity purposes. In the large area of green public open space to the east of the site, the grassland should be managed with a rotational mowing regime to allow for areas of longer sward and increased species diversity;

[5]https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91

- Creation of areas of structural scrub, shrub, and tree planting, to be planted with a diverse mixture of native species, and managed to maximise biodiversity;

- Creation of new hedgerows, to be planted with a diverse mixture of native species, to be managed to maximise biodiversity. This will include areas of hedgerow to be planted on the embankments of the SuDS basins, in order to provide an embankment associated with the hedgerows; and

- Tree planting of predominantly native species will be included throughout the areas of open green space and throughout the residential streetscape. It is assumed that the trees located within the residential streetscape will be more intensively managed for safety and aesthetic reasons. Trees located within the areas of green open space should be managed less intensively, allowing for trees to grow more naturally and reach close to expected size for mature examples of the species planted.

Table 2.7. Created, Retained and Enhanced Habitats

Broad Habitat	Proposed habitat	Area (ha)	Created/ Retained/ Enhanced	Distinctiveness	Baseline condition	Target condition	BNG unit Value – Final
Urban	Developed land; sealed surface	1.1378	Created	V.Low	N/A	N/A	0.0
Urban	Developed land; sealed surface	1.82518	Created	V.Low	N/A	N/A	0.0
Urban	Vegetated garden	0.78222	Created	Low	N/A	N/A	1.51
Grassland	Other neutral grassland	0.7894	Created	Medium	N/A	Moderate	5.28
Grassland	Modified grassland	0.0127	Created	Low	N/A	Poor	0.02
Urban	Sustainable drainage system	0.4845	Created	Low	N/A	Good	1.63
Urban	Bioswale	0.0494	Created	Low	N/A	Moderate	0.13
Heathland and shrub	Mixed scrub	0.1612	Created	Medium	N/A	Moderate	1.08
Individual trees	Urban tree	0.4072	Created	Medium	N/A	Poor	1.14

Table 2.8. Created and Enhanced Hedgerows

Habitat type	Length (km)	Created/Retained/ Enhanced	Distinctiveness	Baseline condition	Target condition	BNG unit Value – Final
Species-rich native hedgerow with trees – associated with bank or ditch	0.281	Created	V.High	N/A	Moderate	3.15
Native Species Rich Hedgerow	0.1	Created	Medium	N/A	Moderate	0.67

Table 2.9. Created and Enhanced Watercourses

Watercourse Type	Length	Created/Retained/Enhanced	Distinctiveness	Baseline Watercourse Encroachment	Baseline Riparian Encroachment	Target Watercourse Encroachment	Target Riparian Encroachment	Condition	BNG Unit Value - Final

Other rivers and streams	0.5	Enhanced	High	No encroachment	Major/Minor encroachment	No encroachment	No encroachment	Moderate	5.52
Culvert	0.05	Created	Low	N/A	N/A	N/A	N/A	Poor	0.04

Future Management

2.14. Habitats created, retained and enhanced on the Site will be maintained for at least 30 years post development to satisfy the conditions for BNG in the Environment Act 2021, as well as best practice guidelines[6]. This should be secured through a Habitat Management and Monitoring Plan (HMMP) as a planning condition. The management will be adapted based on monitoring results to ensure the best desired outcomes are achieved.

[6] Construction Industry Research and Information Association (2019). Biodiversity Net Gain – Principles and Guidance for UK construction and developments.

Section 3: Conclusions

3.1. The Statutory Biodiversity Metric calculated that the proposed development will result in a total net biodiversity unit change of:

- -21.80 habitat units equating to -47.45%;
- +2.24 hedgerow units equating to +12.81%; and
- +0.52 watercourse units equating to +10.40%.

3.2. The headline results of the metric are shown in the screenshot in **Figure 5.1**.

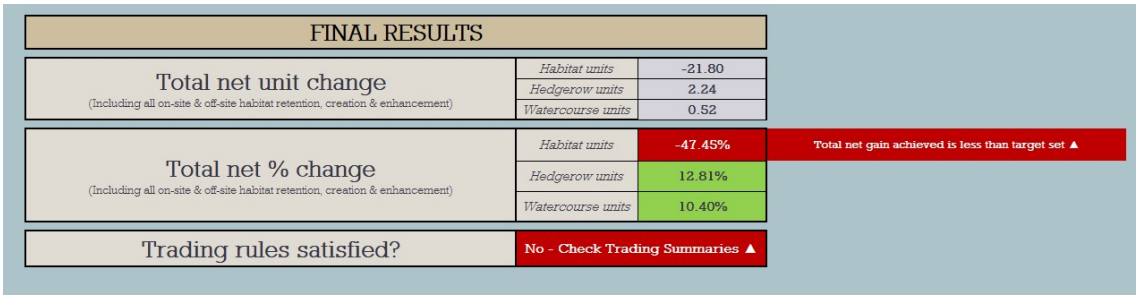


Figure 3.1. Screenshot of Biodiversity Metric 4.0 Headline Results

3.3. The trading rules of the metric are satisfied for hedgerows and watercourses, as same distinctiveness or better habitat will be achieved to offset for most of the losses. The trading rules are however failed for habitats, owing to the loss of areas of other neutral and modified grassland, which cannot be directly compensated through new habitat creation due to the limited space available within the site when accounting for the retention of more ecologically valuable habitats (namely wet woodland), and the required developable area.

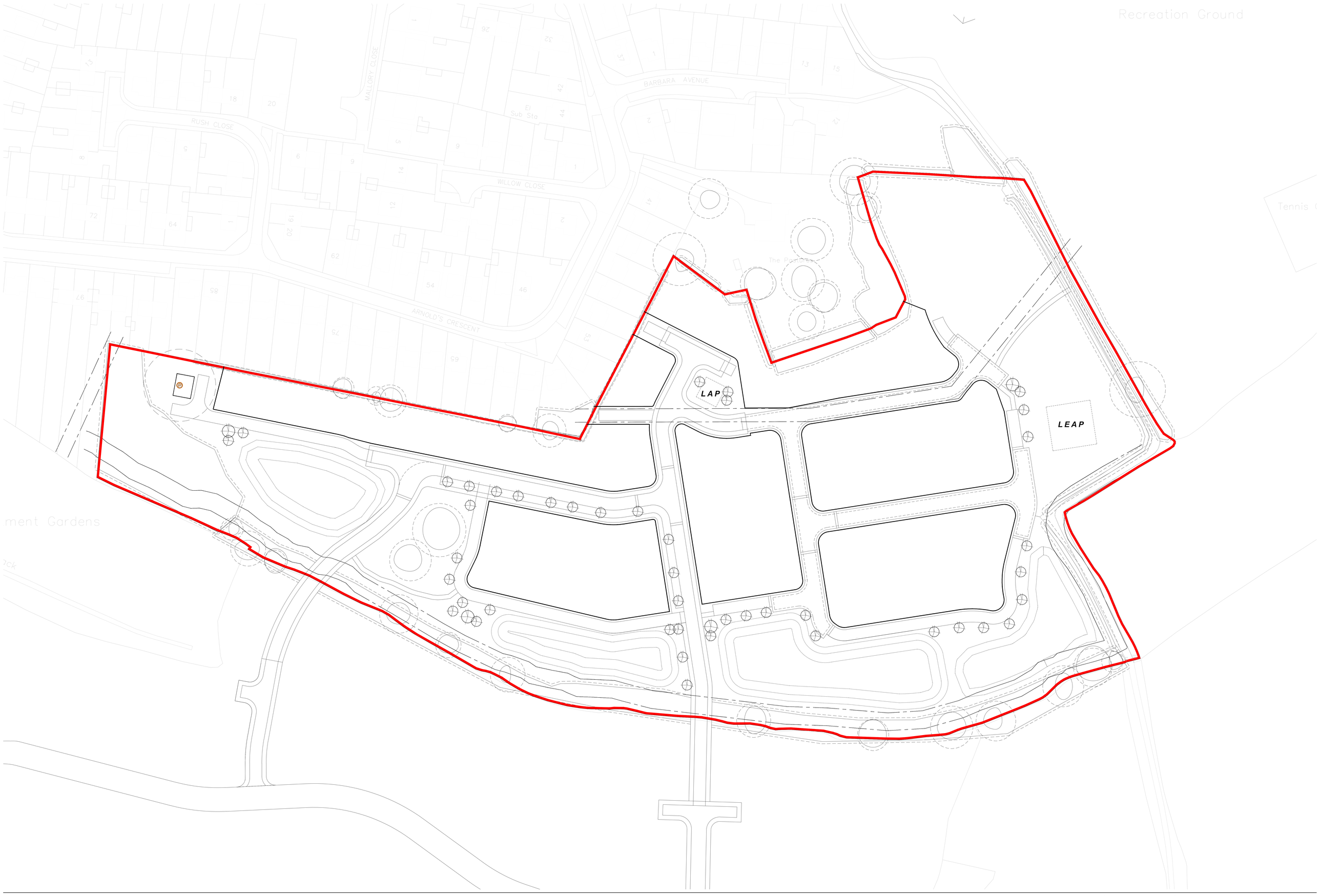
3.4. In addition to the above, a number of measures are proposed to provide additional ecological enhancements for protected and priority species known or with potential to be present within the site and local area. This includes the provision of bat and bird boxes. Although these measures cannot be captured in the Defra metric, they will contribute to enhancing the conservation status of these species, contributing to further biodiversity gains at the site.

3.5. The site as presented would be unable to deliver a measurable net gain as measured using the BNG metric.

3.6. Considering the constraints to the layout and the fact the opportunities for biodiversity have been maximised with the proposals as far as possible, it should be possible to undertake biodiversity offsetting to compensate for losses, in accordance with Local Policy.

3.7. With the implementation of appropriate offsite compensation, it would be possible to secure an overall measurable biodiversity net gain for the site. The proposed development would therefore be in conformity with relevant planning policy and legislation.

Appendix 1: Site Layout



0 5m 10m 15m 20m 25m 30m

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Client: Richborough

Project title: Land South of Arnold's Crescent Newbold Verdon

Drawing title: Development Framework Plan

Scale: 1:500@A0
Date: June 2024
Drawn by: JMP
Checked by: LH
Drawing no.: 902832.36.03
Revision: E

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Appendix 2: Methodology

Desk Study

A1.1. As part of the Ecological Assessment completed by Tyler Grange in 2024, a background desk study was undertaken to identify any designated sites within or in close proximity to the site which could be impacted by the proposed development, with further detail provided in the EA (ref: 16602/R04a).

A1.2. A part of this process, the strategic significance of the site, and its habitats were also determined so as to identify and give extra value to any habitats in optimal locations or that meet local objectives for biodiversity. This process is informed by reviewing local plans and strategies and with habitats assigned a multiplier based in being of 'low', 'medium' or 'high' strategic significance[7].

Habitat survey

A1.3. A detailed in the Ecological Assessment, an extended Phase 1 habitat field survey of the site was undertaken in February 2024 by Emma Jagger an experienced ecologist and BNG assessor at Tyler Grange.

A1.4. The methods used during the walkover survey broadly followed methods used in an 'extended' Phase I habitat survey [8] and entailed recording the main plant species and classifying and mapping habitat types with reference to the Habitat Definitions provided by the UK Habitat Classification Working Group [9] to feed into the Biodiversity Metric. The Statutory Biodiversity Metric User Guide was used during surveys to determine habitat condition and ecological importance.

A1.5. All habitats were assessed utilising the relevant condition criteria for the relevant habitat type under the Statutory Metric", which included confirming 'pass' / 'fail' criteria taken from the UK Habitat/Phase 1 methodology where necessary.

A1.6. Hedgerow surveys were also undertaken on all hedgerows within the site in February 2024 using the methodology detailed in 'The Hedgerow Survey Handbook. 2nd Edition'[10], in order to determine their species-richness. Based on this survey methodology, 30m sections of each hedgerow were surveyed and if 5 or more native wooded species were recorded in that section, the hedge was classified as species-rich. If a hedge was less than 30m in length, the entire length of hedge was surveyed using this methodology.

A1.7. All hedge features, management and dimensions were also recorded, along with their condition as defined in the survey handbook.

Modular River Physical (MoRPh) Survey

[7] Natural England (2023). The Biodiversity Metric 4.0 User Guide: Natural England Joint Publication JP039.
[8] Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough.
[9] UKHab Ltd. (2023). UK Habitat Classification Version 2.0 (at https://www.ukhab.org)
[10] Defra (2007) Hedgerow Survey Handbook. A standard procedure for local surveys in the UK. Defra, London.

A1.8. A watercourse is present adjacent to the sites southern boundary and the 10m riparian zone extends within the site and a River MoRPH survey was therefore undertaken.

A1.9. The methodology was based upon that set out in The MoRPh Survey Technical Reference Manual 2022[11] and is used to gather information on short lengths (or modules) of a river that are used to assess overall river condition. The data recorded in each module to assess condition is comprised of 32 condition indicators, split between four morphological features (Bank Top, Bank Face, Channel-Water Margin and Channel Bed). MoRPh surveys included the river and all habitat within a radius of 10 m of the watercourse.

A1.10. This survey covers at least 20% of the total river length adjacent to the site, and is broken down into subreach surveys comprised of five contiguous MoRPh modules (MoRPh5) (see **Table A1.1** for breakdown of modules). The length of each module is approximately twice the river width, with a minimum length of 10m, and with each MoRPh5 located so as to be spread out as much as possible as well as to cover locations where noticeable changes in river condition occur e.g. areas of high riverine/riparian quality, areas of physical modification, areas where restoration could occur and areas of potential impact.

A1.11. In addition to the field survey, a desk based assessment is also completed to determine river type and to inform the completion of the condition assessment.

Table A1.1. Breakdown of Modules Completed

Total River Length*	20% of river length	River Width	Module length	MoRPh length	Number of MoRPHs completed
500m (linear)	100m	2-3m	10m (based on width <5m)	50m (x5 modules)	2 total (total length 100) >20% of river length

* Adjacent to site or where 10m riparian zone is present in site boundary

Metric calculations

A1.12. The Statutory Biodiversity Metric metric operates by calculating the number of biodiversity units associated with a particular habitat type (both pre-and post-development) – the 'unit' value associated with each habitat type is calculated based on the following parameters:

- Size (in hectares)/Length (in km);
- Distinctiveness (i.e. how rare/valuable a given habitat is);
- Condition (i.e. how well the recorded habitat fits [or will fit] the standardised description of that habitat); and
- Strategic significance (i.e. if the existing or proposed habitat is within an area formally adopted in the local plan for green infrastructure or biodiversity improvements).

[11] Gunnell, A. and Shuker, L. (2022) The MoRPh survey: Technical reference Manual 2022 version.

A1.13. When considering the creation of new habitats in the post-development site, other factors are also considered when calculating the 'unit' value of a given habitat and these are:

- Time to reach the target condition of each habitat; and
- Difficulty category for the creation of a given habitat.

A1.14. The findings of the MoRPh survey are inputted into the BNG metric using similar information as for habitats with the addition of the following:

- Watercourse encroachment: Extend of development within the banks or river channel which includes any intervention that adversely affects hydrological and geo-morphological processes; and
- Riparian encroachment: Extend of development within riparian zone which is defined as a 10m zone from the top of the riverbank.

A1.15. Habitat survey metric calculations were undertaken by Conor Aynsley, an experienced ecologist at Tyler Grange who is a suitably qualified person under the definition of the BS8683:2020[12].

A1.16. River condition assessment and the river sections of the metric were undertaken by Conor Aynsley, a MoRPh accredited ecologist and also a suitably qualified person under the definition of the BS8683:2021.

Application of Mitigation Hierarchy

A1.17. Application of the mitigation hierarchy is fundamental to the ecological impact assessment process. This requires consideration of the following measures, in order of priority, for all potential impacts, to determine the most appropriate mitigation, compensation and enhancement strategy for the project. This is taken into account within **Section 3** of this report and set out below:

- Avoidance – measures to avoid harm to ecological features;
- Mitigation – measures to avoid or minimise potential impacts as part of the design or guaranteed by planning controls;
- Compensation – measures required to offset significant residual negative effects following avoidance and mitigation; and
- Enhancement – measures over and above requirements for avoidance, mitigation and compensation to provide biodiversity net gain.

Limitations

A1.18. The metric uses habitats as a proxy for biodiversity and does not account for other biodiversity enhancements such as species-targeted enhancements like bat and bird boxes. Detail on

[12] The British Standards Institution (2021). Process for designing and implementing Biodiversity Net Gain Specification.

biodiversity mitigation and enhancement measures to be delivered outside of the BNG are detailed in the EA and would be included a LEMP.

A1.19. When mapping and recording habitats, types and conditions were assigned using professional judgement and with reference to the appropriate guidance.

Appendix 3: Baseline Habitat Condition Assessments

A3.1. The following tables provide a summary of the condition assessments completed with regards to the baseline site habitats described in the Section 3. These criteria in the below tables are taken from The Statutory Biodiversity Metric User Guide.

Table A3.1. Modified Grassland – Previously grazed, recently unmanaged (Low Distinctiveness Grassland Type)

Criteria	Details	Result
1 – Species number	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type with indicator species clearly visible. There are 6-8 species per m^2.	Pass
2 – Sward height	Sward height across field is suitably varied, although mostly to a longer sward following lapse in management. Natural fluctuations in sward height occur throughout caused by natural grazing and inundated areas.	Pass
3 - Scrub	Some scattered bramble is present, but it accounts for less than 20% of the total grassland area.	Pass
4 – Damage	Grass is largely free from physical damage (<5%)	Pass
5 – Bare ground	Cover of bare ground is <10%.	Pass
6 – Bracken	There is no bracken present.	Pass
7 – Invasive species	Non-non native species are present	Pass
Result	Pass 0-3 Criteria OR 4-6 Criteria but fails Criteria 1 = Poor / 4-5 Criteria (inc. Criteria 1) = Moderate / 6-7 Criteria (inc. Criteria 1) = Good	**Good**

Table A3.2. Other neutral grassland – Previously grazed, recently unmanaged (Medium Distinctiveness Grassland Type)

Criteria	Details	Result
1 – Representative habitat type	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type with indicator species clearly visible.	Pass
2 – Sward height	Sward height across field is suitably varied, although mostly to a longer sward following lapse in management. Natural fluctuations in sward height occur throughout caused by natural grazing and inundated areas.	Pass
3 – Bare ground	Cover of bare ground is less than 5%	Pass
4 – Scrub and Bracken	Bracken is present at below the 20% threshold. Scattered scrub is present across more than 5% of the habitat onsite.	Fail
5 – Suboptimal species	Species listed as suboptimal for this habitat type are present at or above 5%.. Physical damage and invasive species are absent.	Fail

6 – Species number	There are less than 10 vascular plant species per m2.	Fail
Result	Pass 5 or 6 criteria, including essential A and F = Good / Pass 3-5 criteria including essential A = Moderate / Pass 2 or fewer, or passes 3 or 4 excluding A and F = Poor.	**Moderate**

Table A3.3. Woodland – wet woodland

Criteria	Details	Result
1 - Age distribution	Predominantly mature trees with little evidence of natural regeneration	2
2 – Herbivore damage	No significant browsing evident	3
3 – INNS	No INNS present	3
4 – Number of native tree species	Three to four native trees recorded consistently across parcel	2
5 – Number of native tree and shrub species	80% native species	3
6 – Open space	Area below threshold	3
7 – Woodland regeneration	Limited evidence of regeneration	2
8 – Tree health	No evidence of ill-health	3
9 – Vegetation and ground flora	No recognisable NVA community present	1
10 – Vertical structure	One storey across all plots	1
11 - Veteran trees	No veteran trees	1
12 – Amount of deadwood	Limited standing deadwood	1
13 – Woodland disturbance	Moderate disturbance from previous management	2
Result	Total score 33 to 39 = Good / Total score 26 to 32 = Moderate / Total score 13 to 25 = Poor	**27 - Moderate**

Table A3.4. Cropland

No condition assessment required

Appendix 4: Post-development Habitat Condition Assessments

A4.1. The following tables provide a summary of the condition assessments completed with regards to the post development site habitats described in the Section 4. These criteria in the below tables are taken from The Statutory Biodiversity Metric User Guide.

Table A4.1. Developed land; sealed surface (Urban Habitat Type)

No condition assessment required

Table A4.2. Vegetated Gardens (Urban Habitat Type)

Habitats are automatically classified as poor condition with no condition assessment required.

Table A4.3. Other neutral grassland (Medium distinctiveness grassland type)

Criteria	Details	Result
1 – Representative habitat type	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type with indicator species clearly visible.	Pass
2 – Sward height	Sward height across habitat will be varied through appropriate rotational mowing regime.	Pass
3 – Bare ground	Cover of bare ground is less than 5%, with bare patches reseeded as part of ongoing maintenance.	Pass
4 – Scrub and Bracken	Scrub and bracken to be minimised through mowing regime.	Pass
5 – Suboptimal species	Species listed as suboptimal for this habitat type may be present at or above 5%. Physical damage and invasive species are absent.	Fail
6 – Species number	There are likely to be less than 10 vascular plant species per m2.	Fail
Result	Pass 5 or 6 criteria, including essential A and F = Good / Pass 3-5 criteria including essential A = Moderate / Pass 2 or fewer, or passes 3 or 4 excluding A and F = Poor.	**Moderate**

Table A4.4. Amenity Grassland (Modified) (Low Distinctiveness Grassland Type)

Criteria	Details	Result
1 – Species number	Given the limited size of this habitat, there are unlikely to be more than 6 sp per m2	Fail
2 – Sward height	Sward height across habitat will be uniform through mowing regime.	Fail
3 - Scrub	Scrub to be managed through mowing regime	Pass
4 – Damage	Given proximity to development, this habitat may show signs of increased disturbance and damage.	Fail

5 – Bare ground	Cover of bare ground is <10%. Bare patches should be reseeded as part of ongoing maintenance.	Pass
6 – Bracken	Bracken to be managed through mowing regime	Pass
7 – Invasive species	Non-non native species are present	Pass
Result	Pass 0-3 Criteria OR 4-6 Criteria but fails Criteria 1 = Poor / 4-5 Criteria (inc. Criteria 1) = Moderate / 6-7 Criteria (inc. Criteria 1) = Good	**Poor**

Table A4.5. SuDS (Urban Habitat Type)

Criteria	Details	Result
1 – Vegetation structure	Planting scheme to ensure appropriately diverse structure	Pass
2 – Varied plant species	Mixture of native species to be included, including flowering species.	Pass
3 – INNS	No INNS to be included in planting schedule	Pass
4 – Native species	Majority of species to be included will be native	Pass
5 – Wetland species	Species selected in planting schedule will be appropriately chosen for wetland habitats.	Pass
Result	Pass core criteria 1-3, including criteria for good within 3, and passes criteria 4-5 = Good / Passes 3 or 4 of 5 criteria, or passes 5/5 but not the criteria for good within 3 = Moderate / Passes 2 of fewer = Poor	**Good**

Table A4.6. Bioswale (Urban Habitat Type)

Criteria	Details	Result
1 – Vegetation structure	Planting scheme to ensure appropriately diverse structure	Pass
2 – Varied plant species	Mixture of native species to be included, including flowering species.	Fail
3 – INNS	No INNS to be included in planting schedule	Pass
4 – Native species	Majority of species to be included will be native	Pass
5 – Wetland species	Species selected in planting schedule will be appropriately chosen for wetland habitats.	Fail
Result	Pass core criteria 1-3, including criteria for good within 3, and passes criteria 4-5 = Good / Passes 3 or 4 of 5 criteria, or passes 5/5 but not the criteria for good within 3 = Moderate / Passes 2 of fewer = Poor	**Moderate**

Table A4.7. Scrub and Shrub Planting (Mixed scrub) (Heathland and Shrub Habitat Type)

Criteria	Details	Result
1 – Representative habitat type	Varied mixture of native woody species to be included	Pass

2 – Age variation	Single age class to be planted	Fail
3 – INNS and suboptimal species	No INNS or sub-optimal species will be included in planting mixture	Pass
4 – Well developed edge	The habitat will be located adjacent areas of semi-natural habitat, which will be managed to ensure a well-developed edge to the scrub	Pass
5 – Clearings, glades, rides	No clearings or glades will be present due to size of habitat	Fail
Result	Passes 5 = Good / Passes 3 or 4 = Moderate / Passes 2 or fewer = Poor	**Moderate**

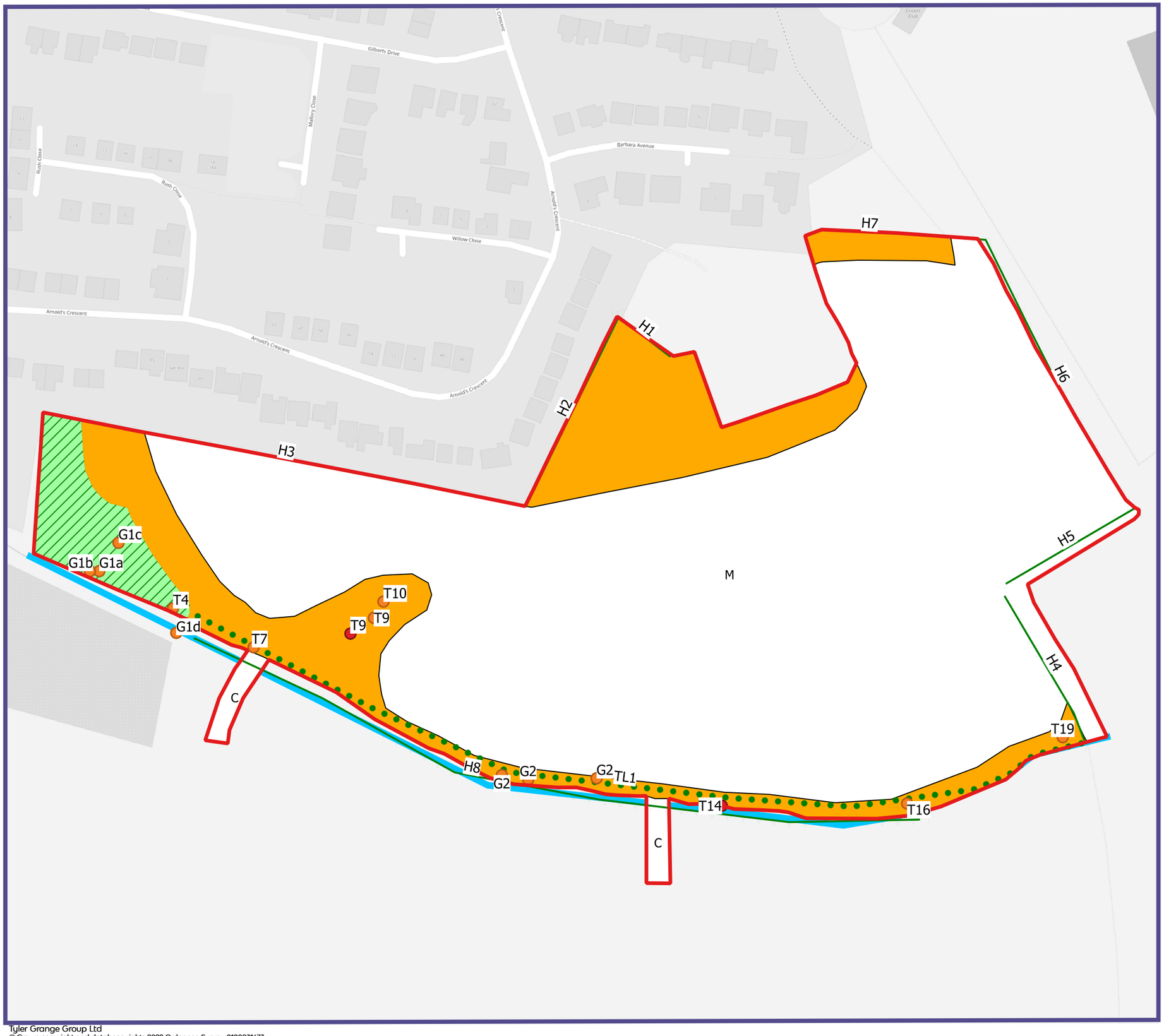
Table A4.8. Urban Tree (Individual trees)

Criteria	**Details**	**Result**
1 – Native species	Trees planted will be predominantly native	Pass
2 – Continuous canopy	Canopy cover not expected to be continuous	Fail
3 – Mature trees	Trees will be immature when planted	Fail
4 – Adverse impacts	Anticipated pruning regime for public safety/tidiness	Fail
5 – Ecological niches	Anticipated pruning regime for public safety/tidiness	Fail
6 – Oversailing vegetation	Canopy not expected to over sail vegetation within residential streetscape	Fail
Result	Passes 5 or 6 = Good / Passes 3 or 4 = Moderate / Passes 2 or fewer = Poor	**Poor**

Plans:

Plan 1: **16602/P013a** Baseline Habitat Features Plan

Plan 2: **16602/P014a** Post-development Habitats Plan



16602 Site Boundary

C Cropland

M Modified Grassland (g4)

Other Neutral Grassland (g3c)

Wet Woodland

Species-rich Native Hedge Associated with Bank or Ditch

Native Hedgerow

Ornamental Hedgerow

Ecologically Valuable Line of Trees Associated with Bank or Ditch

Watercourse

Tree with Bat Potential: PRF-I

Tree with Bat Potential: PRF-M

0 100 m

Project	Land situated to the east of Brascote Lane and south of Arnold's Crescent, Newbold Verdon
Drawing Title	Habitat Features and PBRA Plan
Scale	As Shown (Approximate)
Drawing No.	16602/P13a
Date	June 2024
Checked	CA

Tyler Grange

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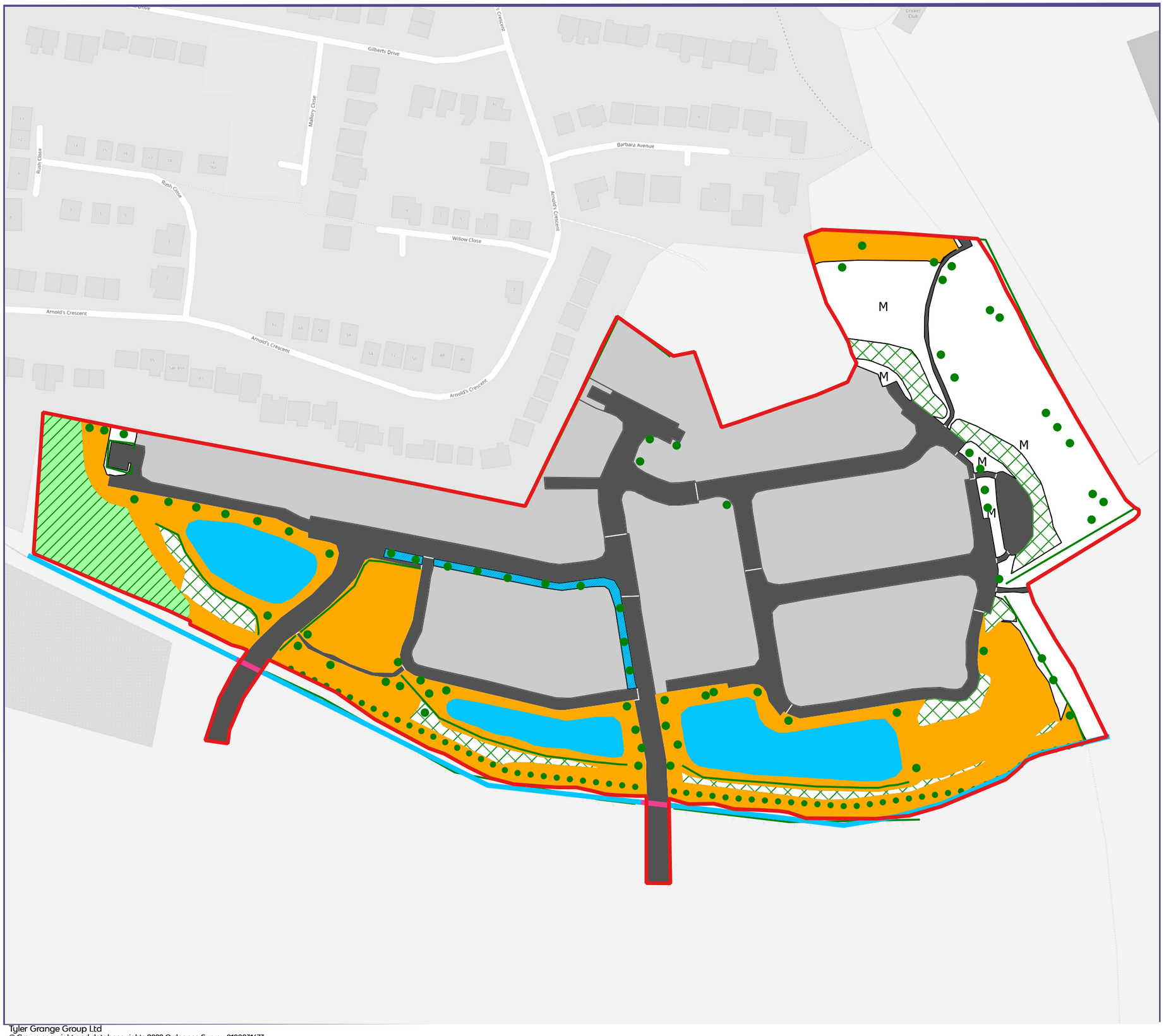

- 16602 Site Boundary
- Bioswale
- Developed Land; Sealed Surface
- Other Neutral Grassland (g3c)
- M — Modified Grassland (g4)
- Residential Parcels
- Mosaic of Structural Scrub and Tree Planting
- SuDS
- Wet Woodland (Retained)
- Species-rich Native Hedge Associated with Bank or Ditch
- Native Hedgerow
- Ornamental Hedgerow
- Ecologically Valuable Line of Trees Associated with Bank or Ditch
- Individual Trees
- Watercourse
- Culvert

0 — 100 m

Project	Land situated to the east of Brascote Lane and south of Arnold's Crescent, Newbold Verdon
Drawing Title	Post-development Habitat Plan
Scale	As Shown (Approximate)
Drawing No.	16602/P14a
Date	July 2024
Checked	CA

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