Biodiversity Net Gain Assessment

April 2026

Land off Watmore Lane, Winnersh

Prepared by
CSA Environmental

On behalf of
Taylor Wimpey West London

Report No: CSA/7168/12

CSA environmental

masterplanning | ecology | landscape | heritage

This report may contain sensitive ecological information. It is the responsibility of the Local Authority to determine if this should be made publicly available.

Report Reference	Revision	Date	Prepared by	Approved by	Comments
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1.0 INTRODUCTION

1.1 This report has been prepared by CSA Environmental on behalf of Taylor Wimpey West London and sets out the findings of a Biodiversity Net Gain (BNG) Assessment. Residential development is proposed at Land off Watmore Lane, Winnersh (hereafter 'the Site'). This report details the net effect of the proposed development upon biodiversity.

1.2 Taylor Wimpey West London have submitted an application for a non-material amendment under Section 96A of the Town and Country Planning Act 1990, to alter the wording of planning conditions attached to the approved application 230208 to introduce phasing into the outline planning permission. This application was approved on 7 April 2025 (reference: 250640). This report has been produced accompany a reserved matters application for Phase 1 of the proposals which cover the northern part of the Site and to address Condition 13 of the planning permission, which reads as follows:

Prior to the commencement of development, an Overall Biodiversity Gain Plan detailing details of how the overall development will achieve a biodiversity net gain of 10% for habitats shall be submitted to and approved in writing by the Local Planning Authority. Prior to the commencement of development within a phase, a Phase Biodiversity Gain Plan identifying how that phase contributes to the Overall Biodiversity Gain Plan shall be submitted to and approved in writing by the Local Planning Authority. The details thereby agreed shall be fully implemented in accordance with an approved timetable.

1.3 This report has been prepared with due consideration for the Chartered Institute of Ecology and Environmental Management's guidance for design stage reporting on Biodiversity Net Gain (CIEEM, 2021). The report also takes into account wider CIEEM best-practice guidance (2017 & 2018), Biodiversity Net Gain: Good Practice Principles for Development (Baker et al., 2019) and the Biodiversity: Code of Practice for Planning and Development, published by the British Standards Institute (BS 42020:2013).

1.4 The Site occupies an area of c. 5.77a and is located around central grid reference SU 78953 70769, to the east of Winnersh, Berkshire. Phase 1 of the Site consists of part of a large modified grassland field enclosed by native hedgerows, ornamental hedgerows and lines of trees to the west and north. A parcel of ancient woodland and part of the Emm Brook form the eastern boundary. The southern edge of the Site is open leading to the remainder of the grassland field within Phase 2 (see Baseline Habitats Plan, Appendix A).

1.5 This report should be read in conjunction with the Construction Ecological Management Plan (CEMP) (Phase 1) (CSA/7168/07) and the

Landscape and Ecological Management Plan (LEMP) (CSA/7168/06) prepared for the proposed development which together provide full baseline habitat information and habitat establishment and management prescriptions upon which the post-development biodiversity value set out herein is based.

1.6 An Overall Biodiversity Gain Plan (CSA/7168/11) for the entire site area (Phases 1 and 2 combined) has been submitted alongside this report to evidence how the Phase 1 net change in biodiversity contributes to the overall objective of achieving a 10% net gain in biodiversity across the entire site area.

1.7 Calculation of biodiversity net gain units has been undertaken using the Natural England Biodiversity Metric 3.1, to be consistent with the metric calculations undertaken at the outline application stage and follows guidance set out within 'Biodiversity net gain. Good practice principles for development' (Baker *et al.*, 2019).

1.8 This 'BNG Assessment aims to:

- Baseline data: classify the type, distinctiveness, condition, connectivity and strategic significance of habitats present prior to and post- development.
- Ensure that baseline habitat conditions are classified in a robust and consistent manner, and that classification is based on the best data available data at the time of assessment.
- Clearly identify data collection methods and any limitations.
- Calculate baseline pre- and post-development habitat units and hedgerows units for the Site based on development proposals for The Long Shoot.
- Propose a Biodiversity Net Gain design with the aim of maximising biodiversity net gain through habitat creation, enhancement and succession.
- Aim to achieve BNG on-site wherever possible; with off-site measures being considered as an alternative option where required.

1.9 The following drawings have been prepared to illustrate the baseline and post-intervention proposals:

- Baseline Habitats Plan (CSA/7168/205) provided in Appendix A
- Proposed Habitats Plan (CSA/7168/215) provided in Appendix B

2.0 PLANNING POLICY & LEGISLATION

2.1 The following legislation brings into force Schedule 14 of the Environment Act (2021), making Biodiversity Net Gain (BNG) a condition of planning permission in England from 12 February 2024:

- The Biodiversity Gain (Town and Country Planning) (Consequential Amendments) Regulations 2024
- The Biodiversity Gain Site Register (Financial Penalties and Fees) Regulations 2024
- The Biodiversity Gain Site Register Regulations 2024
- The Biodiversity Gain Requirements (Exemptions) Regulations 2024
- The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024
- The Biodiversity Gain (Town and Country Planning) (Modifications and Amendments) (England) Regulations 2024

2.2 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024 (amended 2025) sets out existing government planning policies for England and how they should be applied. Chapter 15: Conserving and Enhancing the Natural Environment, paragraph 187, states that the planning system and planning policies should minimise impacts on and provide net gains for biodiversity.

2.3 Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Practice Guidance (PPG). That relating to the protection and enhancement of the Natural Environment was most recently updated in February 2025. The Natural Environment PPG addresses principles across a broad spectrum of topics targeting biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services, and the use of local ecological networks to support the national Nature Recovery Network. In particular, the PPG promotes the delivery of measurable Biodiversity Net Gain through the creation and enhancement of habitats alongside development.

2.4 Policy CP7: Biodiversity from the Wokingham Borough Local Development Framework Adopted Core Strategy Development Plan Document makes reference to biodiversity and the protection and enhancement of priority habitats and species.

2.5 As the outline planning application was submitted prior to 12 February 2024, the Site is not subject to mandatory BNG requirements using the Statutory Metric. A net gain of 10% was required to be demonstrated at the outline application stage in line with local policy requirements and the requirement to achieve a 10% gain at the reserved matters stage is set out within Condition 13 of the outline planning permission.

3.0 METHODS

Biodiversity Calculations

3.1 The Biodiversity Metric 3.1 (Natural England, 2023) was used to determine baseline (pre-development) and post-intervention (post-development) biodiversity values, and to calculate the net effect of the development upon biodiversity in accordance with the Metric 3.1 User Guide (Natural England, 2023). This version of the metric has been used to be consistent with the version of the metric submitted and approved as part of the outline planning application.

3.2 The Biodiversity Metric uses habitat as a proxy for measuring biodiversity more widely. This reductive approach allows for the relative biodiversity 'value' of land to be calculated and expressed as transferrable 'Biodiversity Units'. The metric adopts the UK Habitat Classification (UK Hab; Butcher et al., 2023) system with some minor deviation.

3.3 The metric consists of a primarily 'Area' module which calculates 'Habitat Units' such as grassland, woodland and urban habitats, as well as two linear modules for 'Hedgerow Units' (including lines of trees) and 'Watercourse Units' (including rivers, canals and ditches). The separate Biodiversity Unit types cannot be converted between these modules and are addressed separately herein.

3.4 A Biodiversity Metric 3.1 Calculation Tool has been prepared for the proposed development and is provided separately in full for interrogation by Wokingham Borough Council, relevant consultees and stakeholders.

3.5 All metric calculations have been reviewed by Tom Richards MCIEEM who has extensive experience with Biodiversity Net Gain, condition assessments (FISC level 4) and use of the Biodiversity Metric. Tom has completed the UK Habitat Classification training course 'Mapping Farmed Landscapes using UKHab' and is trained and accredited to complete River Condition Assessments, having completed 'Modular River Survey' training and CIEEM's 'Introduction to the Rivers and Streams Metric for Biodiversity Net Gain' training course.

Baseline Habitats

3.6 The accompanying CEMP report (CSA/7168/07) provides details of the UKHab survey undertaken at the Site on 17 June 2024 including full survey methods.

3.7 Baseline (pre-development) habitat areas and linear measurements were taken from the Baseline Habitats Plan (Appendix A) prepared in mapping software Quantum Geographic Information Systems (QGIS).

Mapping is based upon field survey, topographical survey, aerial photography and OS mapping.

Habitat and Hedgerow Condition Assessment

3.8 An assessment of habitat and hedgerow condition was undertaken initially on 27 July 2021 by Tom Richards MCIEEM (FISC Level 4) to support the version of the metric submitted with the outline application. The results of these condition assessments were checked when the Site was re-visited in June 2024 to ensure conditions were consistent with those previously reported. Published condition assessment templates have been completed and are provided in Appendix C.

River Condition Assessment

3.9 Condition assessments of rivers and streams are applicable where a watercourse is present on-site or within 10m of the Site boundary. The Emm Brook to the east of the Site is predominantly situated on-site or within 10m from the Site boundary except for a portion at its southern end that is outside of this zone.

3.10 A Rivers Condition Assessment of Emm Brook was undertaken by Tom Richards on 8 November 2022. The assessment was undertaken to determine the extent, diversity and structure of observed physical features in the river channel and riparian zone, and the extent and types of human modification and disturbance.

3.11 Prior to the survey an initial desktop scoping exercise was undertaken to determine the number of 'sub-reaches' to be sampled in line with published guidance. For the portion of Emm Brook adjacent to the Site this consisted of one 50m Modular River Physical (MoRPh5) 'sub-reach' of the watercourse to provide an appropriate length of survey (minimum 20% of the watercourse length). The 50m sub-reach consisted of five contiguous 10m survey sections.

3.12 The assessment covered four survey criteria: bank top, bank face, channel-water margin and channel bed. Individual scores were calculated for the MoRPh5 sub-reach for 32 River Condition Indicators (RCI), which include both positive and negative aspects of the watercourse. Data pertaining to the presence and abundance of features was collected on-site and then inputted into cartographer.io software to generate numerical values for the 32 RCI. The RCIs quantify the geo-morphic features of the bank top, bank face, channel-water margin and channel bed with positive RCIs scored between 0 and 4 and negative RCIs scored between -4 and 0. The sum of average positive indicators and average negative indicators provides a Preliminary Condition Score for the sub-reach.

3.13 Following the field survey, a MoRPh River Type desk study assessment was undertaken on a homogenous reach of River, incorporating river habitat

within the Site. Online geospatial data was used to calculate the valley confinement, planform, elevation and length of the reach, and data from the field component of the RCA was used to determine average and coarsest bed material sizes within the sub-reach. This data was also entered into the cartographer.io software and the reach was assigned one river type from a possible 13 river types likely to be encountered in England. The River Type and Preliminary Condition Score data are combined to calculate a Final Condition Score for the sub-reach.

3.14 Assessments of any post-intervention condition score changes were completed by re-running revised sub-reach data through the cartographer.io software based on any predicted impacts or enhancements to sections of the watercourse. Further details of the RCA results are provided in Appendix D.

Post-Development Habitats

3.15 Post-development habitat areas and linear measurements were taken from the Proposed Habitats Plan (Appendix B) prepared in mapping software QGIS. This plan is based upon the Soft Landscape Proposals – Phase 1 prepared by CSA Environmental (CSA/7168/200-202). Wider consideration of construction methods, future land-use and management were used to determine the extent of existing habitat loss/deterioration, retention/enhancement and creation which would occur-post development.

3.16 Professional judgement was required throughout the calculation process to ensure target habitats were reasonable, achievable and ecologically justified. Habitat condition for both enhanced and created habitats was assigned taking a precautionary approach and with consideration of biotic and operational phase conditions (i.e. those which may limit the extent to which 'good' condition is likely to be reached).

Strategic Significance

3.17 A desktop assessment was undertaken to determine relevant strategic significance multipliers for pre- and post-development habitats in accordance with Table 5-4 of of the Biodiversity Metric 3.1 User Guide (Natural England, 2023) with particular consideration of Local Nature Recovery Strategies (LNRS).

Encroachment

3.18 Encroachment is a multiplier specific to the watercourses module of the metric and considers features that adversely affect the natural function of a watercourse, or result in localised changes in habitat, species and migratory pathways. The level of encroachment for both the watercourse and riparian zone at baseline and post-intervention were categorized based on the descriptions set out in Tables 9-3 and 9-4 of

the User Guide (Natural England, 2023) and typically consist of built structures, artificial features and management practices within these zones.

Additionality & Wider Considerations

3.19 In accordance with the good practice principles as set out above, the following additional considerations have been given:

- Wider consideration of ecological functionality, with a qualitative ecological assessment presented herein
- Consideration of non-ecological stakeholders, such as end-users (e.g. residents) of the scheme and choices with regard to access and multi-functionality
- Identification of opportunities to deliver wider environmental gain (e.g. carbon sequestration, water quality and climate resilience) guiding habitat/design choices beyond certain ecological outcomes

Assumptions & Limitations

3.20 Effort has been taken to ensure mapping, and measurements taken from mapping, are accurate to the level stated. However, given the nature of habitats, methods of field survey and the potential for inaccuracies in aerial photography and some other mapping, there remain some potential for errors in the calculations presented herein.

3.21 Professional judgement and a precautionary approach are required to establish baseline and post-development scenarios to assess current habitat type and condition, and to predict future changes. Accordingly outcomes for habitats and biodiversity more widely may differ from those presented herein.

3.22 Specific assumptions with regard to certain existing and proposed habitats have been identified where relevant throughout the report.

4.0 BASELINE BIODIVERSITY

4.1 For full habitat descriptions, please refer to the CEMP (Phase 1) (CSA/7168/01) with baseline habitats illustrated in Appendix A. Appendices C and D set out full details of habitat, hedgerow and watercourse condition assessment including completed standard templates.

Strategic Significance

Habitats and Hedgerows

4.2 The strategic significance criteria within the Biodiversity Metric 3.1 were assessed by determining if existing and proposed habitats within the Site occur within any strategic locations for biodiversity, form part of a designated site for nature conservation or are identified within local plans such as Ecological Networks or steppingstone features.

4.3 Existing habitat at the Site include an area of ancient woodland in the north-east corner of the field. Ancient woodland is identified as a Priority Habitat in the National Habitat Network (Natural England, 2020), which considers this habitat type to be of top priority for nature conservation. Ancient woodland is also identified within the Wokingham Borough Council Draft Local Plan Public Consultation as a site of local importance for nature conservation and 'Policy NE3: Trees, woodland and hedgerows' details the importance of retaining this habitat. Hedgerows and trees are also included within this policy with regards to retention and protection. The ancient woodland, hedgerows and trees on-site have therefore been categorised as 'Formally identified in local strategy' for strategic significance.

4.4 The majority of the Site area is located within Network Enhancement Zone 2 of the National Habitat Network. This Zone is defined as "Land connecting existing patches of primary and associated habitats which is less likely to be suitable for creation of the primary habitat. Action in this zone that improves the biodiversity value through land management changes and/or green infrastructure provision can be targeted here". As a result, new semi-natural habitat creation and enhancement measures proposed within the scheme will help to achieve the objectives of the National Habitat Network and have been assigned the strategic significance category 'Formally identified in local strategy'.

4.5 The above approach has also been adopted for post-intervention (post-development) habitat units as set out below.

Rivers and Streams

4.6 The Emm Brook is situated within the catchment of the River Loddon. The Loddon Catchment Partnership's Action Plan (2023) sets out the known issues and associated actions required within the catchment. Part of

these actions is to identify and implement habitat enhancement measures. Consequently, the baseline and post-intervention enhancements proposed to the Emm Brook are assigned the strategic significance category 'Within Catchment Plans'.

Encroachment

4.7 Encroachment within the rivers and streams section of the metric is assigned to both the riparian zone 10m from the bank top) and in-watercourse (bank face and channel). At both baseline and post-intervention stages, there is no development within 10m of the bank top and no engineered bank revetment or encroachment into the channel. No encroachment exists at baseline or is proposed in the riparian zone or in-watercourse.

Baseline Biodiversity Units

4.8 A summary of the on-site habitat areas and baseline Biodiversity Units, as calculated using the accompanying Statutory Biodiversity Metric are set out in Table 1 below. These include Habitat, Hedgerow and Watercourse Units.

Table 1. Summary of On-site Baseline Biodiversity Units

HABITATS		
Habitat Type (Condition)	**Area (ha)**	**Habitat Units**
Modified grassland (poor)	5.2	10.40
Blackthorn scrub (poor)	0.27	1.08
Bramble scrub (N/A)	0.11	0.44
Lowland mixed deciduous woodland (moderate)	0.17	2.35
Other woodland; broadleaved (poor)	0.02	0.09
Urban tree (moderate)*	0.04	0.37
Total	**5.77**	**14.73**
HEDGEROWS		
Hedgerow Type	**Length (km)**	**Hedgerow Units**
Line of trees (poor)	0.28	0.64
Line of trees (ecologically valuable) (moderate)	0.08	0.74
Hedge ornamental non native (poor)	0.02	0.02
Native hedgerow (good)	0.05	0.35
Hedge ornamental non native (poor)	0.03	0.03
Total	**0.46**	**1.78**
WATERCOURSES		
Habitat Type	**Length (km)**	**Watercourse Units**
Other rivers and streams (moderate)	0.09	1.27
Total	**0.09**	**1.27**

*Areas of urban trees are not included in area totals as they oversail vegetation beneath

4.9 The vast majority of the Site area consists of low distinctiveness modified grassland (c. 90%). Habitats of greater distinctiveness are present which, for the most part, will be retained alongside the proposals (woodland, scrub and trees.

4.10 The Site supports a variety of linear features ranging from very low to low distinctiveness habitat types (line of trees, native and non-native hedgerows; total c. 83%) to medium distinctiveness line of trees (ecologically valuable) and native hedgerows with trees (c. 17%).

4.11 The Emm Brook is a high distinctiveness habitat (other rivers and streams). The Emm Brook was determined to be River Type H (straight-sinuous morphology with gravel/cobble and sand bed material). The Brook runs for 0.09km adjacent to the Site, where it is situated either on-site or within 10m of the Site boundary. The MoRPh5 sub-reach surveyed was categorised as Moderate condition (score: 1.15).

4.12 The threshold for Moderate condition for River Type H is between 0.5 and 1.6. The Emm Brook's condition is quite central within this condition bracket, with many of the positive RCI achieving scores of 2 or 3. The negative indicators that contribute to the Brook not achieving a greater condition score include the presence of managed ground cover on the bank tops, the presence of the non-native invasive species Himalayan balsam *Impatiens gladulifera* on the bank faces and channel bed siltation.

5.0 POST-INTERVENTION BIODIVERSITY

5.1 The proposed development comprises the construction of 111 dwellings with associated private gardens, access infrastructure, Sustainable Drainage System (SuDS) features and Public Open Space.

5.2 To provide achievable net gains on-site, discussions were undertaken with the design team at early stages of the design process to ensure that the layout maximises the potential to retain, enhance and create valuable habitats on-site. The mitigation hierarchy was applied to developing design proposals to avoid and reduce the biodiversity impacts from the scheme. Key habitats were retained and suitable buffer areas applied, including the Emm Brook corridor, ancient woodland, hedgerows, scrub and trees. Additional mitigation measures were also designed in, in the form of new high-quality habitats in place of low value habitats.

5.3 Post-intervention habitats are illustrated on the Proposed Habitats Plan in Appendix B. This drawing is based upon development parameters set out within Soft Landscape Proposals – Phase 1 prepared by CSA Environmental (CSA/7168/200-202).

Habitats and Hedgerows

5.4 The majority of area habitats at the Site will be lost to development, comprising principally modified grassland, with the majority of linear hedgerow habitats retained. The following habitats will be retained and/or enhanced:

- Blackthorn scrub in the north-west and east of the of the Site will be retained
- Ancient woodland in the north-east corner will be retained (0.17ha)
- Plantation woodland to the east on the far side of the Emm Brook will be retained
- Six individual trees will be retained within the northern part of the Site
- All existing hedgerows and tree lines will be retained with the exception of Hedgerows H4 – H6 which are categorised as lost in the metric as they will be situated within private gardens post-development. In reality it is likely that retained hedgerows H4, part of H5, H6 and H7 will remain as they lie partially on-site and partially off-site, however the long-term management of these features cannot be secured within private ownership.

5.5 As part of the proposed development a range of habitats will be created including the following:

- Creation of significant areas of species-rich wildflower grassland, other neutral grassland in moderate condition.
- Thicket planting within open spaces in moderate condition.

- Planting of 136 trees across open space areas and within development parcels. Estimated to be small sized trees at poor condition.
- Creation of short-mown modified grassland footpaths and recreation areas.
- Creation of vegetated gardens associated with new dwellings and introduced shrubs within urban areas not within private ownership.
- Planting of 0.52km of native hedgerow at poor condition and 0.03km of ornamental hedgerow in poor condition.

Watercourses

5.6 The Emm Brook will be retained and protected alongside development within a wide buffer zone from the development edge. The only interaction between the development and the Brook is the requirement for a drainage connection between the Brook and a large drainage basin in the north-east corner of the Site. This connection has been designed as an open side-channel, conveying water from the basin to the Brook without the need for any artificial hard-edging or headwalls to be introduced. As a result, this interaction provides an enhancement to the Brook, introducing a side channel and new variability in bank face profiles and vegetation structure. Alone, this enhancement would not be sufficient to improve the condition score of this part of the watercourse and other enhancement measures have been prescribed to achieve this, as summarised below.

5.7 For the purposes of the post-intervention scenario, the Emm Brook has been divided into three Areas, as shown on the Proposed Habitats Plan in Appendix B. Area A to the north is a 0.07km section that is characterised by bank top ancient woodland habitat to the west. Area B is 0.02km long where it falls within Phase 1 and encompasses a central section of the watercourse where the drainage side channel is proposed. Area C is the remining stretch to the south which is fully within Phase 2. The following enhancement measures are proposed in the Phase 1 areas:

<u>Area A</u>

5.8 Due to the proximity to the ancient woodland habitat and objective to retain this part of the Site unchanged within the development, no significant interventions are proposed within this section of the watercourse. A strategy for the control of Himalayan balsam along the length of the Brook is recommended, which will enhance this Area. Alone, this enhancement improves the condition score of Area A from 1.15 to 1.38. While this section will be enhanced, the proposals will not improve the condition up to fairly-good (score of 1.60+), and as such, Area A is specified as retained within the metric.

Area B

5.9 A new side channel will be created, measuring c. 8.5m in length. This section of the existing bank face will be re-profiled and re-planted, allowing for an improvement in channel margin vegetation extent and richness. The bank top zone on the western bank will be removed from active agricultural management. Within the bank top zone, new habitat creation measures will improve the vegetation structure. The Himalayan balsam control strategy will also be implemented, reducing this negative indicator for the bank face. Together, these enhancement measures will improve the condition score of Area B from 1.15 to 1.61, achieving fairly-good condition.

Strategic Significance

5.10 An equivalent approach to strategic significance as been taken for post-intervention Biodiversity Units as for baseline units above, with medium distinctiveness habitats being categorised as 'Formally identified in local strategy'.

6.0 NET EFFECT ON BIODIVERSITY

Biodiversity Units

6.1 The net effect on biodiversity as a result of the proposed development is set out within the accompanying metric and summarised below in Tables 2A, 2B and 2C.

Table 2A. Net Effect on Biodiversity: Habitat Units

	Habitat Units	**% Change**
On-site baseline	14.73	
On-site post-intervention	17.06	
Total net change	**+2.33**	**+15.82%**
Trading Rules Not Satisfied		

Table 2B. Net Effect on Biodiversity: Hedgerow Units

	Hedgerow Units	**% Change**
On-site baseline	1.78	
On-site post-intervention	2.41	
On-site net change	**+0.64**	**+35.92%**
Trading Rules Satisfied		

Table 2C. Net Effect on Biodiversity: Watercourse Units

	Watercourse Units	**% Change**
On-site baseline	1.24	
On-site post-intervention	1.29	
On-site net change	**+0.04**	**+3.47%**
Trading Rules Satisfied		

6.2 It is demonstrated that the proposed development will result in a net gain in excess of 10% for Habitat Units and Hedgerow Units. A net change of +3.47% is identified for and Watercourse Units. Combined with the Phase 2 net change in watercourse units, a 10% overall net change will occur. Similarly, combined with the Phase 2 proposals, all trading rules will be satisfied, with a net gain in excess of 10% achieved for all three unit types.

7.0 SUMMARY & CONCLUSIONS

7.1 Planning permission sought for the proposed development is subject to a Biodiversity Net Gain requirement of 10%. As set out herein, a net gain in biodiversity will occur for Phase 1 of the proposals, based upon provision of on-site habitat retention and creation measures.

- +2.33 Habitat Unit gain or +15.82%
- +0.64 Hedgerow Unit gain or +35.92%
- +0.04 Watercourse Unit gain or +3.47%

7.2 The establishment and management of retained and proposed habitats to achieve the biodiversity net gain targets set out herein is detailed within a separate LEMP report (CSA/7168/06).

8.0 REFERENCES

Baker, J., 2016. *Biodiversity Net Gain: Good practice principles for development*. CIEEM, CIRIA & IEMA.

Baker, J., Hoskin, R., and Butterworth, T., 2019. *Biodiversity Net Gain: Good Practice Principles for Development. A practical guide*. CIEEM, CIRIA & IEMA.

Chartered Institute of Ecology and Environmental Management, 2017. *Guidelines for Ecological Report Writing*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2021. *Biodiversity Net Gain Report and Audit Templates*. Winchester: CIEEM.

Department for Levelling Up, Housing & Communities, 2023. *National Planning Policy Framework (NPPF)*. London: Department for Levelling Up, Housing & Communities.

Natural England, 2020. *National Habitat Network Maps; User Guide V.2*. Available at: https://magic.defra.gov.uk/Metadata_for_magic/Habitat%20Network%20Mapping%20Guidance.pdf [Accessed May 2025].

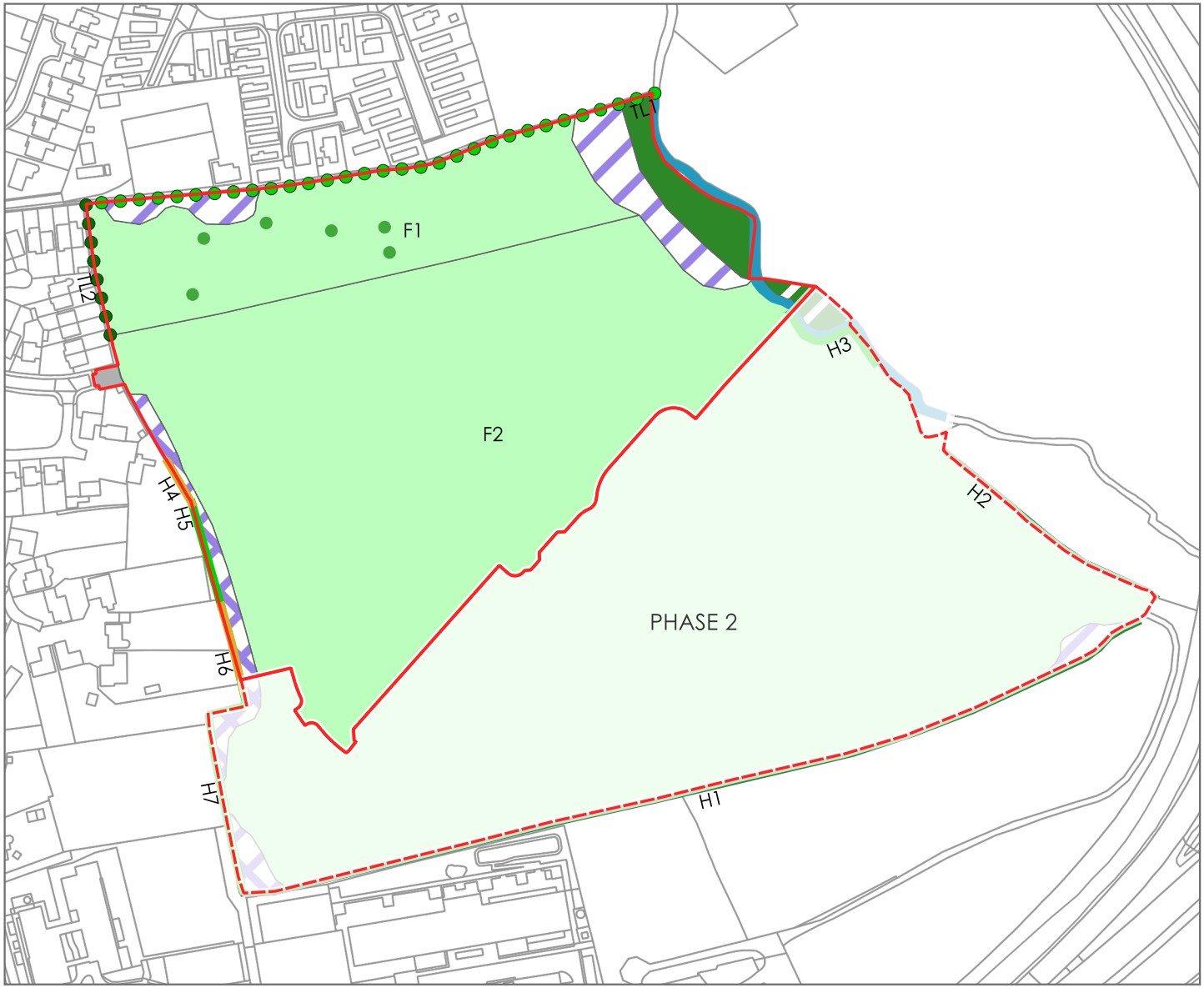
Natural England, 2023. *Biodiversity Metric 3.1 – Auditing and Accounting for Biodiversity*, Natural England: London.

Natural England, 2023. *Biodiversity Metric 3.1 – Auditing and Accounting for Biodiversity User Guide*, Natural England Joint Publication JP039: London.

River Loddon Catchment Partnership, 2023. *River Loddon Catchment Partnership Action Plan*, [online] Available at: https://storymaps.arcgis.com/collections/4328b25bc06947889a21710cbefcca4e?item=5 [Accessed May 2025].

Appendix A

Baseline Habitats Plan
(CSA/7168/205)



N

- Site boundary (Phase 1)
- Site boundary (Phase 2)
- Modified grassland
- Blackthorn scrub
- Bramble scrub
- Developed land; sealed surface
- Broadleaved deciduous woodland
- Other woodland; broadleaved
- Native hedgerows with trees
- Native hedgerows
- Ornamental hedgerows
- Line of trees
- Lines of trees (ecologically valuable)
- Emm Brook
- Rural trees

0 50 100 m

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Project	Land off Watmore Lane, Winnersh	Date	April 2025	Drawing No.	CSA/7168/205
Drawing Title	Habitats Plan (Phase 1)	Scale	Refer to scale	Rev	-
Client	Taylor Wimpey West London	Drawn	TR	Checked	KC

Appendix B

Proposed Habitats Plan
(CSA/7168/215)

- Modified grassland retained inside veteran tree buffers / enhanced within reptile receptor area
- Other neutral grassland; wildflower meadow (moderate condition)
- Modified grassland (poor condition)
- Retained blackthorn scrub (poor condition)
- Mixed scrub; thicket (moderate condition)
- Developed land; sealed surface (N/A condition)
- Retained deciduous woodland (moderate condition)
- Retained plantation woodland (poor condition)
- Introduced shrub (N/A condition)
- Sustainable urban drainage feature (moderate condition)
- Vegetated garden (N/A condition)
- Urban trees (poor condition)
- Retained rural trees (moderate condition)
- Retained native hedgerow with trees (moderate condition)
- Retained native hedgerow (good condition)
- Ornamental hedgerow planting (poor condition)
- Native hedgerow planting (moderate condition)
- Retained line of trees (poor condition)
- Retained lines of trees (ecologically valuable; mode
- Emm Brook (Area B enhanced to fairly good condition; Area A retained at moderate condition)

0 50 100 m

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Project	Land off Watmore Lane, Winnersh	Date	April 2026	Drawing No.	CSA/7168/215
Drawing Title	Proposed Habitats Plan (Phase 1)	Scale	Refer to scale	Rev	B
Client	Taylor Wimnpey West London	Drawn	SV	Checked	TR

Appendix C

Habitat & Hedgerow Condition Assessments

Woodland

Criteria Summary

	Indicator	Good	Moderate	Poor
1	Age distribution of trees	Three age classes present	Two age classes present	One age class present
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland
3	Invasive plant species	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native
6	Open space within woodland	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21 - 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space
7	Woodland regeneration	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high risk pest or disease present
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community
10	Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots
11	Veteran trees	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps
13	Woodland disturbance	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground

Condition Assessment Result	Condition Assessment Score
Total score >32 (33 to 39)	Good
Total score 26 to 32	Moderate
Total score <26 (13 to 25)	Poor

Assessment Results

Assessment criteria	Broadleaved deciduous woodland	Other broadleaved woodland
1. Age distribution of trees	2	1
2. Wild, domestic and feral herbivore damage	2	3
3. Invasive plant species	2	3
4. Number of native tree species	3	1
5. Cover of native tree and shrub species	3	1
6. Open space within woodland	3	3
7. Woodland regeneration	2	1
8. Tree health	1	3
9. Vegetation and ground flora	1	1
10. Woodland vertical structure	2	1
11. Veteran trees	1	1
12. Amount of deadwood	1	1
13. Woodland disturbance	3	3
Woodland Condition Score	26	23
	Moderate	**Poor**

Grassland – Low Distinctiveness

Criteria Summary

Condition Assessment Criteria	
1	There must be 6-8 species per m2. If a grassland has 9 or more species per m2 it should be classified as a medium distinctiveness grassland habitat type. NB - this criterion is essential for achieving moderate condition.
2	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.
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.
4	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.
5	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).
6	Cover of bracken less than 20%.
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).
Condition Assessment Result	**Condition Assessment Score**
Passes 6 or 7 of 7 criteria including essential criterion 1	Good
Passes 4 or 5 of 7 criteria including essential criterion 1	Moderate
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1	Poor

Assessment Results – On-site

Habitat	Criteria							Score
	1	2	3	4	5	6	7	
Field F1	N	N	Y	Y	N	Y	Y	**Poor**
Field F2	N	N	Y	Y	N	Y	Y	**Poor**
Field F3	N	N	Y	Y	N	Y	Y	**Poor**

Scrub

Criteria Summary

Condition Assessment Criteria	
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.
Condition Assessment Result	**Condition Assessment Score**
Passes 5 criteria	Good
Passes 3 or 4 criteria	Moderate
Passes 0, 1 or 2 criteria	Poor

Assessment Results

Habitat	Criteria					Score
	1	2	3	4	5	
Blackthorn scrub adjacent to ancient woodland	N	N	Y	Y	N	**Poor**
Blackthorn scrub in north-west corner of field	N	N	Y	Y	N	**Poor**
Blackthorn scrub in south-east corner of field	N	N	Y	N	N	**Poor**

Line of Trees

Criteria Summary

Condition Assessment Criteria	
1	More than 70% of trees are native species.
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.
3	Includes one or more mature or veteran tree.
4	There is an undisturbed naturally vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other anthropogenic operations.
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.
Condition Assessment Result	**Condition Assessment Score**
Passes 5 criteria	Good
Passes 3, 4 or 5 criteria	Moderate
Passes 0, 1, or 2 criteria	Poor

Assessment Results

Habitat	Criteria					Score
	1	2	3	4	5	
TL1	Y	N	Y	N	N	Poor
TL2	Y	Y	Y	N	N	Moderate

Hedgerows

Criteria Summary

Attribute	Criteria	Description
A1. Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).
A2. Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths are only included in the width estimate when they are >0.5m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years.
B1. Gap – hedge base	Gap between ground and base of canopy <0.5 m for	This is the vertical gappiness of the woody component of the hedgerow, and its

	90% of length (unless 'line of trees')	distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).
B2. Gap – hedge canopy continuity	· Gaps make up <10% of total length and · No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy. Access points and gates contribute to the overall gappiness, but are not subject to the >5m criterion.
C1. Undisturbed ground and perennial vegetation	>1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · measured from outer edge of hedgerow, and · is present on one side of the hedge (at least)	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedge. Undisturbed ground should be present for at least of 90% of the hedgerow length, greater than 1m in width and must be present along at least one side of the hedge. This criterion recognises the value of the hedge base as a boundary habitat within the capacity to support a wide range of species. C
C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	The indicator species used are nettles (*Urtica* spp.), cleavers (*Galium aparine*) and docks (*Rumex* spp.).
D1. Invasive and neophyte species	90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.
D2. Current damage	90% of the hedgerow or undisturbed ground is free of damage caused by human activities	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).
Additional group - applicable to hedgerows with trees only		
E1. Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.
E2. Tree health	At least 95% of hedgerow trees are in healthy condition. There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.
Hedgerow Condition Assessment		
Condition categories for hedgerows without trees		
Good	No more than 2 failures in total;	

	AND no more than 1 in any functional group.
Moderate	No more than 4 failures in total AND does not fail both attributes in more than one functional group.
Poor	Fails a total of more than 4 attributes; OR fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).
Condition categories for hedgerows with trees	
Good	No more than 2 failures in total; AND no more than 1 failure in any functional group.
Moderate	No more than 5 failures in total AND does not fail both attributes in more than one functional group.
Poor	Fails a total of more than 5 attributes; OR fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).

Assessment Results

Assessment criteria	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**
A1. Height	Y	Y	Y	-	Y	-	Y
A2. Width	Y	Y	Y	-	Y	-	N
B1. Gap – hedge base	Y	Y	N	-	Y	-	Y
B2. Gap – hedge canopy continuity	Y	Y	Y	-	Y	-	N
C1. Undisturbed ground and perennial vegetation	Y	Y	Y	-	Y	-	Y
C2. Undesirable perennial vegetation	N	N	N	-	Y	-	Y
D1. Invasive and neophyte species	Y	Y	Y	-	Y	-	Y
D2. Current damage	Y	Y	Y	-	Y	-	Y
E1. Tree age	N	Y	-	-	-	-	-
E2. Tree health	N	Y	-	-	-	-	-
Hedgerow Condition Score	**Moderate**	**Good**	**Good**	**Poor**	**Good**	**Poor**	**Good**

Appendix D

River Condition Assessment Results

Project Name:	Land off Watmore Lane, Winnersh				Watercourse Name:					Emm Brook
						Post Development				River Type: Type H
Location	Code	Name	Code	Positive or Negative	Baseline Condition Score	Area A (North) Score	Area B (Mid) Score	Area C (South) Score	Likely Maximum Score for this River Type (Type H)[◊]	Condition score thresholds for river type ■: Good = >2.4 Fairly good = >1.6 Moderate = >0.5 Fairly poor = >-0.9 Poor = <-0.9
Bank Top	B1	Bank top vegetation structure	B1	+	2	2	2	2	4	Count of five vegetation structural types (present or extensive only): 1. mosses/lichens, 2. short/creeping herbs/grasses, 3. tall herbs/grasses, 4. scrub/shrubs, 5. saplings/trees.
	B2	Bank top tree feature richness	B2	+	2	2	2	3	4	Count of five tree features (present or extensive only): 1. fallen trees, 2. leaning trees, 3. j-shaped trees, 4. tree/shrub branches trailing into channel, 5. large wood.
	B3	Bank top water-related features	B3	+	0	0	2	2	2	Presence of: 1. pond: disconnected, 2. pond: connected, 3. side channel, 4. wetland short non-woody vegetation (mosses, sedges), 5. wetland tall non-woody vegetation (reeds, rushes), 6. wetland shrubs and trees (alder/willow carr).
	B4	Bank top NNIPS cover	B4	-	0	0	0	0	-	Presence of non-native invasive species, taking into account the number of different species and their abundances.
	B5	Bank top managed ground cover	B5	-	-2	-2	-1	-1	-	Extent of dominant and sub-dominant artificial/managed ground cover types. Differ in severity. Vegetated agriculture, vegetated recreation and plantation woodland low severity. Transport, buildings, landfill higher severity. Remove managed ground cover types to improve score.
Bank Face	C1	Bank face riparian vegetation structure	C1	+	3	3	3	3	3	Count of five structural types (present or extensive only): 1. mosses/lichens, 2. short/creeping herbs/grasses, 3. tall herbs/grasses, 4. scrub/shrubs, 5. saplings/trees.
	C2	Bank face tree feature richness	C2	+	2	2	2	2	4	Count of seven tree features (present or extensive only): 1. fallen trees, 2. leaning trees, 3. j-shaped trees, 4. tree/shrub branches trailing into channel, 5. large wood, 6. exposed tree roots, 7. discrete organic accumulations.
	C3	Bank face natural bank profile extent	C3	+	3	3	3	3	4	A maximum of 2 natural bank profile extents are recorded on each bank. This is the sum of the abundance of natural profiles (present or extensive only) across both banks. I.e. the more extensive natural bank profiles are the better. Natural profiles: vertical, vertical with top overhang, undercut or vertical with undercut, vertical with toe, steep (>45°), gentle (<45°) or composite.
	C4	Bank face natural bank profile richness	C4	+	4	4	4	4	4	Count of the 7 different natural bank profile types (listed above) recorded as present or extensive along either bank, a single count is applied across both banks (i.e. maximum possible value of 7).
	C5	Bank face natural bank material richness	C5	+	1	1	1	1	2	Count of 10 different natural bank material types that are recorded as dominant in the upper or lower parts of any of the bank profiles within the subreach (each type can only be counted once). Material types: 1. bedrock, 2. boulder, 3. cobble, 4. gravel-pebble, 5. sand, 6. silt/fine non-sticky sediments, 7. clay, 8. organic, 9. peat, 10. earth.
	C6	Bank face bare sediment extent	C6	+	2	2	2	2	3	Total abundance of bare sediment on the bank face across both banks (non-linear clase due to intermediate abundances of bare sediment providing the most varied habitat, i.e. low or high abundance of bare sediment isn't a positive feature).
	C7	Bank face artificial bank profile extent	C7	-	0	0	0	0	-	A maximum of 2 artificial profile types are recorded on each bank. This is the total extent of artificial profiles recorded across both banks. Artificial profiles: 1. reshaped, 2. artificial two-stage, 3. embanked, 4. set-back embankment, 5. poached bank.
	C8	Bank face reinforcement extent	C8	-	0	0	0	0	-	Extents of bank face reinforcement across the top, bottom or whole of the bank face.
	C9	Bank face reinforcement material severity	C9	-	0	0	0	0	-	Severity level of the dominant reinforcement types observed. Most severe types include concrete, brick, stone and sheet piling. Low severity types include willow spiling, planted reeds and biotex/coir.
	C10	Bank face NNIPS cover	C10	-	-3	0	0	0	-	Presence of non-native invasive species, taking into account the number of different species and their abundances.
Channel - Water Margin	D1	Channel margin aquatic vegetation extent	D1	+	2	2	2	2	2	Extent of 4 aquatic morphotypes at the channel margin - water edge, 1. Liverworts/mosses/lichens, 3. emergent broad-leaved, 3. emergent linear-leaved, 4. amphibious.
	D2	Channel margin aquatic morphotype richness	D2	+	1	1	2	1	2	Count of the four aquatic morphotypes (above) recorded as present or extensive.
	D3	Channel margin physical feature extent	D3	+	1	1	1	1	3	Extent of 8 physical features recorded as present or extensive (1. unvegetated side bar, 2. vegetated side bar, 3. berm, 4. bench, 5. stable cliff, 6. eroding cliff, 7. toe, 8. marginal backwater) and 1 physical feature recorded as a count (1. tributary junction).
	D4	Channel margin physical feature richness	D4	+	2	2	2	2	3	Count of the number of 8 physical features recorded as present or extensive (above) and have a count of at least 1 (for tributary junction). Each feature can only be counted once within a subreach.
	D5	Channel margin artificial features	D5	-	0	0	0	0	-	Presence of artificial features, weighted according to severity and number. Features: 1. jetties, 2. deflectors, 3. pipes/outfalls.
Channel Bed	E1	Channel aquatic morphotype richness	E1	+	1	1	1	1	2	Count of aquatic plant morphotypes recorded on the channel bed (possible 9 types): 1. liverworts/mosses/lichens, 2. emergent broad-leaved, 3. emergent linear-leaved, 4. floating leaved (rooted), 5. free floating, 6. amphibious, 7. submerged broad-leaved, 8. submerged linear-leaved, 9. submerged fine-leaved.
	E2	Channel bed tree features richness	E2	+	2	2	2	2	3	Count of 4 tree features on the channel bed recorded as present or extensive (1. vegetation shading channel, 2. submerged tree roots, 3. large wood, 4. discrete accumulation of organic material), or two tree features with a count of ≥1 (1. large wood dam, 2. fallen tree). Each feature can only be counted once.
	E3	Channel bed hydraulic features richness	E3	+	2	2	2	2	3	Count of 8 possible water surface flow types observed as present or extensive. Each feature can only be counted once. 1. free fall, 2. chute, 3. broken standing waves, 4. unbroken standing waves, 5. upwelling, 6. rippled, 7. smooth, 8. no perceptible flow.
	E4	Channel bed natural features extent	E4	+	0	0	0	0	2	Presence of 11 channel bed natural physical features. Includes 7 recorded in terms of abundance (1. exposed bedrock, 2. exposed unvegetated boulders, 3. exposed vegetated boulders, 4. unvegetated mid channel bars, 5. vegetated mid channel bars, 6. islands, 7. cascades) and 4 recorded as counts (1. pools, 2. riffles, 3. steps, 4. waterfalls).
	E5	Channel bed natural features richness	E5	+	0	0	0	0	2	Count of the 11 physical features (above) that are observed as present or extensive or have a count of at least 1. Each features is only counted once.
	E6	Channel bed material richness	E6	+	2	2	2	2	3	Count of the 9 possible mineral and organic bed materials that are observed as present or extensive. Each type is only counted once. 1. peat, 2. organic, 3. clay, 4. silt, 5. sand, 6. gravel-pebble, 7. cobble, 8. boulder, 9. bedrock.
	E7	Channel bed siltation	E7	-	-2	-2	-2	-2	-	Abundance of any patchy silt layer and continuous overlying silt layer.
	E8	Channel bed reinforcement extent	E8	-	0	0	0	0	-	Extent of bed reinforcement in terms of abundance.
	E9	Channel bed reinforcement severity	E9	-	0	0	0	0	-	Severity level of the dominant reinforcement types observed. Most severe types include concrete, brick, stone and sheet piling. Low severity types include builders waste and washed out.
	E10	Channel bed artificial features severity	E10	-	0	0	0	0	-	Presence of artificial features, weighted according to severity and number. Features: 1. large trash, 2. bridge shadow, 3. weirs, 4. bridge pier in river bed, 5. culvert.
	E11	Channel bed NNIPS extent	E11	-	0	0	0	0	-	Presence of non-native invasive species, taking into account the number of different species and their abundances.
	E12	Channel bed filamentous algae extent	E12	-	0	0	0	0	-	Extent of filamentous algae on the channel bed.

Positive Index Average	1.68	1.68	1.84	1.84
Negative Index Average	-0.54	-0.31	-0.23	-0.23
Preliminary Condition Score	**1.15**	**1.38**	**1.61**	**1.61**
Condition	**Moderate**	**Moderate**	**Fairly-good**	**Fairly-good**

◊ Gurnell, A.M., Scott, S.J., England, J., Gurnell, D.J., Jeffries, R., Shuker, L., Wharton, G. (accepted 10.6.20) Assessing River Condition: A Multiscale Approach Designed for Operational Application in the Context of Biodiversity Net Gain. River Research & Applications.

■ Gurnell, A.M., England, J., Scott, S. J. & Shuker, L. J. (2020) A Guide to Assessing River Condition Part of the Rivers and Streams Component of the BioDiversity Net Gain Metric.

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