ARUP

Bristol City Council

Temple Island Enabling Works

Biodiversity Net Gain Plan

Reference: TI-ARP-STW-XX-RP-EC-00153

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1. Introduction

1.1 Background

Ove Arup and Partners Limited (Arup), working on behalf of the Bristol City Council (BCC) Strategic Partner[1] has been instructed by BCC to prepare a Biodiversity Net Gain (BNG) Plan to discharge a planning condition for a suite of engineering works to enable the future development of the Temple Island site (planning reference 22/06015/FB). The application has been submitted to and granted by BCC as the Local Planning Authority (LPA). The proposed development is described below:

"Engineering works to enable the Temple Island site for further development, comprising of remediation, structural fill and installation of utilities infrastructure."

The engineering works which are required to enable the future development of the site comprise:

> Site remediation: remediation to reduce the risk of contaminative sources impacting the adjacent River Avon.
>
> Structural fill: raising the site levels using imported structural fill material in order to address existing variations in levels on the site.
>
> Utilities infrastructure: the diversion and installation of a suite of utility services and drainage for the site.

A detailed description of each of the above works is provided in Section 5.1 of the Ecological Impact Assessment (EcIA) for this project[2].

Full details of the proposal are outlined within the planning statement (Document Reference: TI-ARP-STW-XX-RP-PL-00083).

Planning Condition 5, with amended wording as per the non-material amendment (NMA) (planning reference 23/03424/NMA), is in two parts and this BNG Plan fulfils the first part of the condition:

"The applicant shall not commence any remediation and/or utilities works before a biodiversity net gain plan containing details of how the full habitat unit requirement will be met, has been submitted to and approved in writing by the Local Planning Authority.

Upon completion of the structural fill works, a certificate giving the date of the completion of the works shall be submitted to the Local Planning Authority. Within three months of the completion of the structural fill works, evidence that the full habitat unit requirement has been secured (in accordance with the approved biodiversity net gain plan), must be submitted to and approved in writing by the Local Planning Authority."

1.2 Site Location

The application site is the former diesel depot on Bath Road (BS4 3DT), known locally as Temple Island. It comprises approximately 2.56 hectares of brownfield land in the Windmill Hill ward of central Bristol. The site is bounded to the north and east by the River Avon and to the west/south-west by the A4 highway and the southern main rail line into Bristol Temple Meads. It is located within the Bristol Temple Quarter Enterprise Zone (designated in 2012). A red line boundary of the site is shown in Figure 1.

[1] Bristol City Council have procured Arcadis, working with Arup and Mott MacDonald as their Strategic Partner. The Partner is in place to bring about a step change in the Council's ability to meet ambitions for Bristol. The partnership combines the capacity and expertise that exists within the Council with the capabilities and reach of three globally recognized market leading consultancies to significantly accelerate the pace of delivery of the BCC Corporate Plan priorities and the One City Plan

[2] Arup. (2022). Ecological Impact Assessment. Temple Island Enabling Works. Reference: TI-ARP-STW-XX-RP-EC-00078.

Outside of the red line boundary but lying immediately adjacent to the site and within the overall 'island' of land, is the proposed location of a mixed-use university campus (the 'Enterprise Campus') for the University of Bristol, which received consent in 2019[3] and is undergoing development.

1.3 Site Description

1.3.1 Existing and historical land use

Temple Island is a brownfield site which has historically been used as a rail diesel depot alongside other industrial uses, such as the siting of a turntable for locomotive repairs and a small gasworks. The depot closed in the mid-1990s and demolition of all buildings and structures occurred in 2003. The site has undergone several periods of remediation and ground investigation since its closure, and it has remained cleared with no permanent buildings or structures located on the site. More recently, it was the proposed location for the Bristol Arena and received planning permission for this use, however, the Arena scheme was not taken forward. Recent use of the site has been used as a temporary compound/storage for nearby projects, including by a rail contractor.

1.3.2 Access

Vehicular access to the site is via Brocks Bridge connecting to Feeder Road to the north-east of the island. There is also a service road/emergency access at the south of the site, which runs below the A4 overpass and is connected to the A4 via gated access. Pedestrian and cycle access is also provided by the recently completed St Phillips footbridge to the east of the site, however this is currently closed off at the island end and is not publicly accessible.

1.4 Aims of BNG Plan

The aims of this BNG Plan are to fulfil the first part of Planning Condition 5 of planning application 22/06015/FB by setting out a clear, strategic pathway to achieving a 10% net gain for the Temple Island Enabling Works project, including the following:

The baseline conditions of the site, including the baseline habitat units;

The post-development habitat units;

How 10% net gain will be achieved; and

The management and monitoring process.

[3] Application reference: 17/06459/P

2. Legislation, Planning Policy and Guidance

2.1 Planning Policy

2.1.1 National Policy

The following national planning policies are relevant to assessing the impacts of development upon nature conservation:

National Planning Policy Framework (NPPF)[4];

The NPPF states that "*Planning policies and decisions should contribute to and enhance the natural and local environment by:*

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures…"

2.1.2 Local Policy

The following policies from Bristol's Local Plan place requirements on developers with regard to green infrastructure and nature conservation.

Bristol Core Strategy[5]

Policy BCS9 states: *"Integrity and connectivity of the strategic green infrastructure network will be maintained, protected and enhanced. Opportunities to extend the coverage and connectivity of the existing strategic green infrastructure network should be taken.*

Individual green assets should be retained wherever possible and integrated into new development. Loss of green infrastructure will only be acceptable where it is allowed for as part of an adopted Development Plan Document or is necessary, on balance, to achieve the policy aims of the Core Strategy. Appropriate mitigation of the lost green infrastructure assets will be required. Development should incorporate new and/or enhanced green infrastructure of an appropriate type, standard and size. Where on-site provision of green infrastructure is not possible, contributions will be sought to make appropriate provision for green infrastructure off site."

It also states that for sites designated for Biological (and Geological) Conservation:

"Internationally important nature conservation sites are subject to statutory protection. National and local sites of biological and geological conservation importance will be protected having regard to the hierarchy of designations and the potential for appropriate mitigation. The extent to which a development would contribute to the achievement of wider objectives of the Core Strategy will be carefully considered when assessing their impact on biological and geological conservation.

Where development would have an impact on the Bristol Wildlife Network it should ensure that the integrity of the network is maintained or strengthened [Land with a function as a corridor for wildlife, along with the locally designated Sites of Nature Conservation Interest, form the Bristol Wildlife Network. The Network either links the designated local sites to each other or to the wider countryside.]."

[4] Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2. Last accessed October 2023.

[5] Bristol City Council (2011) Bristol Development Framework Core Strategy – Adopted June 2011.

***Site Allocations and Development Management Policies Document*[6]**

"Policy DM19: Development and Nature Conservation - builds on the Core Strategy policy BCS9, providing further detailed criteria for the consideration of proposals affecting nature conservation sites and features of value in Bristol including statutory, locally designated sites (SNCI's) and Bristol Wildlife Network Sites.

It also includes policy for protection of Species or Habitats of Principal Importance, as determined under Section 41 of the NERC Act 2006."

"Policy DM29: Design of New Buildings - Incorporate opportunities for green infrastructure such as green roofs, green walls and green decks, which would provide opportunities for wildlife."

The Bristol Biodiversity Action Plan (BAP)[7]

Bristol's Biodiversity Action Plan provides the over-arching framework for habitat and species conservation in Bristol. The Bristol BAP provides a means by which national and regional biodiversity strategy can be translated into effective action in the city. The Bristol BAP is deliberately closely aligned to the Avon BAP to ensure a consistency of approach.

Criteria for inclusion of species on the Bristol BAP Priority Species List:

Species on the UKBAP List that are found in Bristol (N.B. species for which Bristol has occasional records, but is of little significance e.g., vagrants, have been excluded).

Species that are found in nationally or internationally important concentrations in Bristol.

Species whose local declines meet the criteria used at national level for inclusion on the national BAP List.

Species that are strongly associated with buildings, for which development control could therefore be very significant, which the steering group have reason to believe would meet criterion 3, but for which robust data is lacking.

Principal Species of Importance in Bristol include:

Otters (*Lutra lutra*);

Water voles (*Arvicola amphibius*);

Hedgehogs (*Erinaceus europaeus*); and

House sparrows (*Passer domesticus*).

Principal Habitats of Importance in Bristol include:

Estuarine Habitats;

Species-rich Grassland;

Woodland;

Open Mosaic Habitats on Previously Developed Land;

Reedbeds and Sedgebeds;

Scrub;

Ponds and Open Water; and

[6] Bristol City Council (July 2014) Site Allocations and Development Management Policies Document.

[7] Bristol Biodiversity Partnership (2008) The Bristol Biodiversity Action Plan.

Rivers and Rhines.

Bristol City Council's One City Ecological Emergency Strategy[8]

In September 2020, a task group of Bristol's One City Environmental Board developed an ecological emergency strategy for the city. The strategy is the city's first coordinated effort to confront the decline in nature. The strategy's four goals are:

1. Space for nature – at least 30% of land in Bristol to be managed for the benefit of wildlife by 2030.
2. Pesticides - reduce the use of pesticides in Bristol by at least 50% by 2030.
3. Pollution - 100% of Bristol's waterways to have water quality that supports wildlife by 2030.
4. Our wider footprint – people and businesses to reduce consumption of products that undermine the health of wildlife and ecosystems around the world.

Bristol City Council's Ecological Emergency Action Plan 2021-2025[9]

In response to the One City Ecological Emergency Strategy, BCC produced its own Ecological Emergency Action Plan which is a council-wide programme of activities to deliver on the ambitions of the One City Ecological Emergency Strategy and relevant aspects of the One City Climate Strategy. Its purpose is to:

integrate best ecological practice into each area of the council's activity;

demonstrate commitment to the One City Ecological Emergency Strategy alongside the One City Climate Strategy and its objectives;

support and influence action by partners and through partnerships;

support and enable action by citizens; and

develop evidence and knowledge to support decision making and innovation in addressing nature-related issues.

2.2 Biodiversity Net Gain Context

The National Planning Policy Framework (NPPF)[4] states that '*planning policies and decisions should minimise impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*'.

Bristol City Council (BCC) also provide a focus and framework for securing net gain. Policy BCS9 of the Core Strategy[10] states: '*Appropriate mitigation of lost green infrastructure assets will be required. Development should incorporate new and/or enhanced green infrastructure of an appropriate type, standard and size. Where on-site provision of green infrastructure is not possible, contributions will be sought to make appropriate provision for green infrastructure off site*.'

Policy DM19 of the Site Allocations and Development Management Policies Document[11]: '*builds on BCS9 providing further detailed criteria for the consideration of proposals affecting nature conservation sites and features of value in Bristol... and includes policy for the protection of Species or Habitats of Principal Importance, as determined under Section 41 of the NERC Act 2006.'*

[8] Bristol Once City, No Date. Once City Ecological Emergency Strategy. Available at https://www.bristolonecity.com/wp-content/uploads/2020/09/One-City-Ecological-Emergency-Strategy-28.09.20.pdf. Last accessed October 2023.

[9] https://www.bristol.gov.uk/documents/20182/5572361/Ecological_Emergency_Action_Plan.pdf/2e98b357-5e7c-d926-3a52-bf602e01d44c?t=1630497102530

[10] Bristol City Council (2011) Bristol Development Framework Core Strategy – Adopted June 2011.

[11] Bristol City Council (July 2014) Site Allocations and Development Management Policies Document.

Environment Act (2021)[12]: aims to deliver long-lasting action for the protection and recovery of nature. The introduction of the Environment Act is being phased and in January 2024 is anticipated to mandate the delivery of 10% BNG as a requisite of most developments. Though the requisite of 10% BNG is not yet mandated, any planning submissions submitted post January 2024 are anticipated to be affected.

[12] Environment Act 2021. Available at https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted. Last accessed October 2023.

3. Methods

The full methodology for the collation of baseline ecological conditions on the site are provided in Section 3 of the EcIA[2] and are summarised below.

3.1 Desk Study

A desk study was carried out to identify statutory and non-statutory designated sites within 10 km and 2km, respectively, from the site boundary. Online searches were carried out using the Multi-Agency Geographic Information for the Countryside (MAGIC)[13], and the Joint Nature Conservation Committee (JNCC)[14] website. Records of local designations such as Sites of Nature Conservation Importance (SNCI) and Bristol Wildlife Network Sites were obtained from the Bristol Regional Environmental Record Centre (BRERC[15]).

In addition to this, biodiversity records were obtained from the BRERC in 2021. The records included protected and priority species up to 2 km from the proposed works.

Furthermore, a review of previous ecological survey reports for the site, published between 2014 and 2021 was undertaken, as detailed within the Preliminary Ecological Appraisal[16] . These included:

Temple Quarter Enterprise Campus (TQEC) Environmental Impact Assessment Chapter 9 Ecology (Burohappold Engineering, 2017)[17];

University of Bristol Temple Quarter Enterprise Campus Preliminary Ecological Appraisal (Burohappold Engineering, 2017)[18];

Bristol Arena Island Environmental Statement (ES) Chapter 12 Ecology (The Wildlife Trusts Consultancies Wild Service, 2015)[19]; and

Bristol Arena Site Temple Quarter Enterprise Zone Ecological Appraisal on behalf of Bristol City Council (Avon Wildlife Trust (AWT) Ecological Consultancy, 2014)[20].

3.2 Field Survey

A suite of field surveys has been carried out to inform the baseline ecological conditions of the site. These surveys were all carried out by suitably qualified ecologists and include:

Preliminary ecological appraisal (PEA)[16];

Botanical surveys[21] (UK Habitat Classification (UKHabs) [22]);

[13] http://magic.defra.gov.uk/MagicMap.aspx Accessed October 2023.

[14] http://jncc.defra.gov.uk/ Accessed October 2023.

[15] https://www.brerc.org.uk/. Last accessed October 2023.

[16] Arup (November 2021). Preliminary Ecological Appraisal and Ecological Strategy. Temple Island Enabling Works. Document Reference TI-ARP-STW-XX-RP-EC-00030.

[17] Burohappold Engineering (September 2017) Temple Quarter Enterprise Campus (TQEC) Environmental Impact Assessment Chapter 9 Ecology.

[18] Burohappold Engineering (September 2017) University of Bristol Temple Quarter Enterprise Campus Preliminary Ecological Appraisal.

[19] The Wildlife Trusts Consultancies Wild Service (November 2015) *Bristol Arena Island Environmental Statement Chapter 12 Ecology*.

[20] Avon Wildlife Trust (AWT) Ecological Consultancy (2014) *Bristol Arena Site Ecological Appraisal*.

[21] BSG Ecology (2022). Temple Island Phase 2 Botanical Report. Project Number: P22-186 Botanical Survey Report.

[22] Butcher, B. et al. (2020). The UK Habitat Classification – Habitat Definitions Version 1.1

Invertebrate surveys[23];

Bat surveys[24,25];

Otter surveys[26]; and

Nesting bird surveys[27].

3.3 Biodiversity Net Gain

The calculation of baseline units (the initial part of the BNG process) has been undertaken using up-to-date UK Habs survey data and using Natural England's Defra Metric 3.1 ("the Metric")[28]. The calculations have been presented within a BNG Statement[29].

A UK Habs survey was undertaken in summer 2022 by BSG Ecology to update the Phase 1 Habitat Survey undertaken as part of the PEA in 2021. Condition assessments have been undertaken according to guidance within the Biodiversity Metric technical supplement[30].

It should be noted that as the baseline habitat units were calculated prior to the release of the Defra Metric 4.0, all subsequent metric calculations will use the 3.1 version of the metric.

3.3.1 Baseline Biodiversity Units

3.3.1.1 Habitat and Hedgerow Units

Distinctiveness

The habitat distinctiveness values are based on the species richness, rarity (local, regional, national and international scales) and degree to which the habitat supports species rarely found in other habitats.

Distinctiveness is automatically populated by the Metric, based on the habitat type as identified during the field survey. Priority habitats such as wet woodland are assigned 'High' distinctiveness; semi-natural habitats, such as mixed scrub and other broadleaved woodland, are assigned a 'Medium' distinctiveness. Artificial habitats, such as modified grassland and vegetated gardens, are assigned 'Low' distinctiveness, whilst artificial habitats which include large amounts of ornamental / non-native species, such as ornamental hedgerows or developed land, are assigned 'Very Low' distinctiveness.

Condition

Habitat condition is a measure of the habitat's quality and can only be assessed after a habitat type has been assigned. The criteria by which habitat condition is measured is dependent on the habitat type assigned, with all habitat parcels being assessed as one of three habitat conditions of good, moderate or poor based on the number of criteria the parcel 'passes' or 'fails' as per the habitat conditions assessment sheets[31]. Habitat condition was established during the field survey, by assessing how many of the relevant criteria for that

[23] BSG Ecology (2022). Temple Island Invertebrate Report. Project Number: P22-186 Invertebrate Report.

[24] AECOM (October 2021) Temple Island Bat Survey Report for Bristol City Council.

[25] AECOM (November 2021) - Technical Note - A4 Retaining Wall Bat Hibernation Suitability.

[26] AECOM (August 2021) Temple Island Otter and Water Vole Survey Report for Bristol City Council.

[27] Ecological Services Limited (September 2022) Temple Island Retaining Wall De-vegetation. Ecological Situation Report.

[28] Natural England (2022). Biodiversity Metric 3.1 Available online https://publications.naturalengland.org.uk/publication/5850908674228224. Last accessed October 2023.

[29] Arup (September 2022) Temple Island Enabling Works – Biodiversity Net Gains Statement.

[30] Natural England (2022). Biodiversity Metric 3.1 - Technical Supplement.

[31] Natural England (2022). Biodiversity Metric 3.1 – Habitat Condition Assessment Sheets Available online https://publications.naturalengland.org.uk/publication/5850908674228224. Last accessed October 2023.

particular habitat type had passed or failed for each habitat parcel using the Metric habitat condition assessment sheets.

Intermediate categories (fairly good and fairly poor) are available if it is not possible to distinguish between condition categories, with justification provided. However, habitats should generally be assigned to one of the three main categories where possible.

Strategic Significance

The strategic significance of each habitat is based on a landscape scale assessment. Published local plans and objectives including information from Bristol BAP[7] were used to identify the local priorities for biodiversity and nature improvement. The habitats were then scored accordingly, based on their value to the local plan.

3.3.1.2 Irreplaceable Habitat and Designated Sites

Irreplaceable habitat is defined within NPPF[4] and the Metric[32] user guide as: '*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.*'

Additional guidance is provided within the Construction Industry Research and Information Association (CIRIA) Good Practice Guide[33] which states that: '*Irreplaceable habitat is habitat that, once lost, cannot be recreated elsewhere, within a reasonable timeframe. Ancient woodland, active peatland and limestone pavements are widely accepted as examples of irreplaceable habitats.'* It also specifies further relevant factors in considering whether a habitat is irreplaceable including age, environmental context and evidence on achievability of re-creation.

The presence of irreplaceable habitats and statutory designated sites overlapping with the site boundary were therefore established through the desk study and field survey.

NE and CIRIA guidance indicates that irreplaceable habitats and habitats that fall within statutory designated sites should be excluded from the Biodiversity Unit calculation due to requiring separate consideration, which must comply with relevant policy and legislation. Statutory designated sites and irreplaceable habitats have been excluded from the Metric. Avoidance of impacts on irreplaceable habitats should always be sought as a project cannot achieve BNG if there are impacts to irreplaceable habitats.

3.3.2 Post-Development Biodiversity Units

The impact of the proposed development upon the baseline was also calculated within the Metric, taking into consideration those baseline habitats retained, created, enhanced and lost to development. To calculate the post-development biodiversity units, the same components are required to be populated for the created and enhanced habitats as for the baseline (*i.e.*, habitat type, condition and strategic significance).

Given the nature of the proposed development, *i.e.*, the land is being enabled for further development and no built form or end use is proposed, there are no options to mitigate any habitat losses as part of these works within the site boundary. Therefore, the on-site post development habitats will comprise 2.56 ha of artificial unvegetated, unsealed surface, with zero Habitat Units delivered onsite.

Post-development habitat types were then inputted into the metric based on the above. The same methodology was used to establish strategic significance of habitats as was used for the baseline units (as detailed in Section 3.3.1).

In addition to this, temporal multipliers and difficulty multipliers are also applied for the post-intervention scenario, to reflect the difficulty of creating the target habitat, and the average time it takes for that habitat to reach the target condition and maturity. These multipliers are automatically applied by the metric, based on a

[32] Panks et. al. (2022). Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England.

[33] Baker, J., et al. (2019). Biodiversity Net Gain. Good Practice Principles for Development. CIRIA.

manual input of the habitat type and condition, and the number of years in advance or delayed the habitat would be created compared to the commencement of baseline habitat losses.

For off-site habitat creation or enhancement, an additional spatial risk multiplier is applied to reflect the distance between the on-site and off-site locations.

The baseline units have been compared to the post-development units to demonstrate the change in biodiversity as a result of the development. A gain in units indicates a quantitative net gain in biodiversity. This process has been repeated iteratively throughout design in order to first avoid, then minimise impact on biodiversity features within the site and provide opportunity for habitat creation and enhancement.

3.4 Evidence of Technical Competence and Experience

The baseline field surveys were carried out by a range of ecologists from Arup, AECOM, BSG Ecology and Ecology Services Limited, all of whom are members of the Chartered Institute of Ecological and Environmental Management (CIEEM). Detail of which can be found in the EcIA[2].

The BNG assessment was led by Arup Senior Ecologists, Catherine Jones and Nick Mason. Both have over seven years professional experience as an ecologist and are Full members of CIEEM. They have extensive practice conducting BNG assessments using the various iterations of the Metric, as well as other versions of biodiversity metrics, such as those previously produced by Network Rail and National Highways. This experience includes baseline assessments as well as post-construction assessment optioneering and scenario-testing.

The Quality Assurance process has included review and approval by Claire Pooley CEcol MCIEEM and Dr Paul Clack CEnv MCIEEM FLS, respectively.

4. Baseline Conditions

This section summaries the baseline condition of the Temple Island site. Full details of the baseline conditions, including designated sites and protected species are available in Section 4 of the EcIA[2]. In summary, no designated sites lie within the site boundary, but the River Avon SNCI is adjacent to the site.

4.1 Habitats and Flora

The site is dominated by Open Mosaic Habitats on Previously Developed Land (OMH), covering approximately 1.43 ha. The habitat comprises a mosaic of early successional plant communities and bare substrate which provide niches for a high diversity of floral species. The habitat qualifies as a Priority Habitat under Section 41 of the NERC Act 2006 and is in 'moderate' condition according to the Natural England criteria[31] used for BNG calculation purposes.

Small areas of dense scrub are present at the boundaries of the site. Species in this habitat are dominated by common and widespread species, including hawthorn (*Crataegus monogyna*), buddleia (*Buddleja davidii*) and bramble (*Rubus fruticosus* agg.). The remainder of the site, an area of approximately 1.09 ha, comprises Artificial Unvegetated, Unsealed Surface (u1c) and Developed Land, Sealed Surface (u1b).

Figure 2 shows the results of the Phase 1 Habitat Survey and Figure 3 shows the UK Habitat Classification survey results.

4.2 Fauna

Details of the protected and notable species found within the site boundary can be found in Section 4.3 of the EcIA[2]. In summary, the structures adjacent to the site boundary, A4 retaining wall and A4 vault have high suitability for roosting bats. However, no bats have been recorded emerging from them. Otters have been recorded (footprints) using the banks of the River Avon, adjacent to the site. Scrub within the site and trees and scrub immediately outside the site boundary provide nesting habitat for common and widespread bird species. The OMH provides habitat for a range of invertebrate species. Surveys in 2022 recorded 166 species as present, including 33 species that are locally common or locally scarce and seven Section 41 species of principal importance, nationally scarce or rare. The Schedule 9 non-native invasive species, montbretia (*Crocosmia x crocosmiiflora*) was recorded within the site boundary.

4.3 Biodiversity Net Gain Baseline

The baseline broad habitat types (according to UKHab) within the red line boundary, areas of each habitat and the Habitat Units attributed to each are detailed in Table 1 below. Full details of the baseline BNG assessment are provided in the BNG Technical Note[29].

Strategic significance: The site is bordered by the River Avon SNCI and two rail corridors which are regarded as Bristol Wildlife Network Sites (policy BCS9 and DM19). However, the site itself has not been identified as part of Bristol's strategic green infrastructure network (Policy BCS9), but rather, it is within 'Bristol Temple Quarter' an 'enterprise zone' within Bristol Central Area Plan (policy BCAP35[34]).

Despite the fact the habitats within the redline boundary comprise predominantly Open Mosaic Habitat on Previously Developed Land (a Priority Habitat and Bristol BAP habitat[7]), because they have not been identified as habitats of specific strategic significance, it is considered they cannot be classed as 'High strategic significance' in the Metric 3.1 calculator tool.

For the purposes of this assessment, they have been classed as 'Medium strategic significance' i.e., the location is ecologically desirable but not identified in local plan, strategy or policy.

[34] Bristol City Council Bristol Central Area Plan https://www.bristol.gov.uk/files/documents/2239-bcap-adopted-march-2015-policies-map/file

Table 1. Baseline habitat value.

Metric Reference	UK Habitat Classification	Existing Area (ha)	Existing Value (Habitat Units)
1	Urban; Open mosaic habitat on previously developed land (OMH)	1.43	18.90
2	Urban; Developed land, sealed surface	0.03	0.00
3	Urban; Artificial unvegetated, unsealed surface	1.06	0.00
4	Heathland and shrub; Mixed scrub	0.05	0.41
	Total	**2.56**	**19.32**

5. Offsetting Proposals

Given the nature of the proposed development, *i.e.*, the land is being enabled for further development and no built form or end use is proposed, there are no options to provide habitat creation and net gain within the development site as part of these works. Therefore, the on-site post development habitats will comprise 2.56 ha of artificial unvegetated, unsealed surface, with zero Habitat Units delivered onsite.

Therefore, one or more off-site net gain sites will be required in order to achieve the target of 10% net gain on this project. These sites will need to provide a minimum of 21.25 Habitat Units.

It has been agreed with the LPA that the offsetting of the loss of the OMH and scrub can be achieved through the use of off-site net gain sites, providing they are of importance to invertebrates. Lowland meadow or another floristically diverse grassland type will be created, by enhancing areas of improved/amenity grassland, as this habitat type is of high conservation value and also of significance for invertebrate populations, including notable butterfly species. Bristol City Council will be contacted to provide a portfolio of sites, suitable for such enhancements within 5 km of the Temple Island site.

The portfolio of sites will be assessed for their feasibility to enhance the existing habitats to a higher distinctiveness species-rich grassland habitat and/or in a better condition. This process will include:

habitat classification in accordance with current UK Habs guidance.

habitat condition assessments in accordance with the Defra Metric 3.1; and

soil analysis in accordance with the guidance in Natural England Technical Information Note TIN035[35].

Based on the habitat surveys, condition assessments and soil analysis results, the potential for species-rich grassland enhancement will be assessed. The number/area of the off-site net gain sites will be determined by this analysis.

When the potential off-site net gain sites have been selected, with appropriate species-rich grassland enhancements and realistic target conditions, the data will be inputted into the Defra Metric 3.1 to calculate the potential number of Habitat Units to be delivered. Once it is certain the required 21.25 Habitat Units can be achieved, enhancement plans for each off-site net gain site will be written, to be implemented by Bristol City Council.

[35] https://publications.naturalengland.org.uk/publication/31015 Accessed October 2023.

6. Management and Monitoring

To ensure that the off-site net gain sites reach their target distinctiveness and condition, a programme of management and monitoring will be undertaken for a minimum of 30 years, to be submitted and approved by the LPA under Condition 6 of the planning consent (22/06015/FB, 23/03424/NMA). Full details of the management and monitoring prescriptions will be provided in individual Landscape and Ecological Management Plans (LEMPs) for each off-site net gain site but will follow the general prescriptions below. These LEMPs will be developed in consultation with BCC and will remain adaptive throughout the 30-year period.

Arisings from all mowing operations will be removed from site and disposed of responsibly. This is to reduce soil fertility and increase suitability for wildflowers.

For the first few years of management only, newly created grassland will be cut to 5-10 cm every two months from March/April to deter vigorous grasses and reduce available nutrients. Once it is determined, through monitoring, that the frequency of cutting can be reduced, the management prescription will change to one annual cut in later summer/early autumn with all arisings removed.

Water key areas in periods of dry weather to maintain healthy growth.

No fertilisers or pesticides will be used in the grasslands. Should herbicide use be necessary (e.g., to deal with undesirable species), the remedial action will be limited to spot treatment.

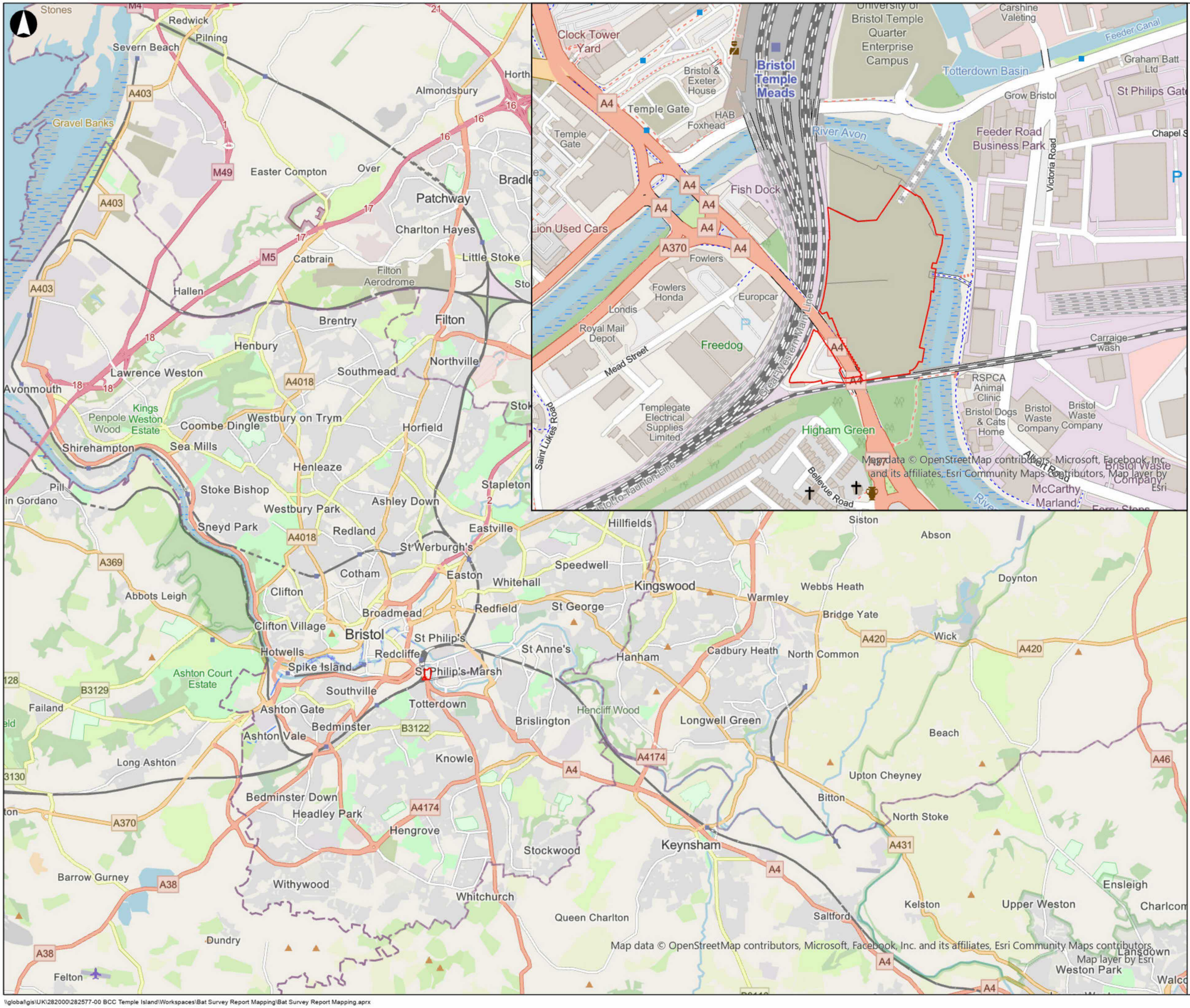
Monitoring of the grasslands will be undertaken in Years 1, 2, 3, 5 and every 5 years thereafter until year 30 of the management plan.

Monitoring of the grassland habitat will be carried out using Common Standards Monitoring (CSM) Guidance for Lowland Grassland Habitats[36] by a suitably qualified ecologist in June/July in order to help determine the level of success of establishment and enhancement, and the potential need for additional seeding or changes to management, as required.

[36] JNCC (2004) Common Standards Monitoring Guidance for Lowland Grassland Habitats

Figures

Figure 1: Site Location



A3

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Rev	Date	By	Chkd	Appd	Authd
V01	30/08/23	CJ	NM	PC	AD

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Client
Bristol City Council

Project Name
Temple Island

Drawing Title
Site Location

Scale at A3
1:120,000

Role
Ecology

Suitability
S4

Project Number
282577-00

Rev
01

Drawing Number
Figure 1

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Figure 2: Phase 1 Habitat Map

A3

Legend

- RED LINE BOUNDARY
- TARGET NOTES

PHASE 1 HABITATS:

- A1.1.1 - BROADLEAVED WOODLAND - SEMI-NATURAL
- A2.1 - SCRUB - DENSE/CONTINUOUS
- A2.2 - SCRUB - SCATTERED
- C3.1 - OTHER TALL HERB AND FERN - RUDERAL
- H1.1 - INTERTIDAL - MUD/SAND
- J1.1 - CULTIVATED/DISTURBED LAND - EPHEMERAL/SHORT PERENNIAL
- J1.4 - INTRODUCED SHRUB
- J2.8 - EARTH BANK
- J3.6 - BUILDINGS
- J4 - BARE GROUND
- J5 - GRAVEL/HARD STANDING
- SCATTERED BROAD-LEAVED TREES
- HARD CLIFF
- FENCE
- WALL

Coordinate System: British National Grid

Metres

0 15 30 60

Rev	Date	By	Chkd	Appd
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Project Title
TEMPLE ISLAND ENABLING WORKS

Drawing Title
PHASE 1 HABITAT SURVEY MAP

Scale at A3
1:1,500

Role
ECOLOGY

Suitability
S3

Arup Job No
282577-00

Rev
P01

Name
FIGURE 2

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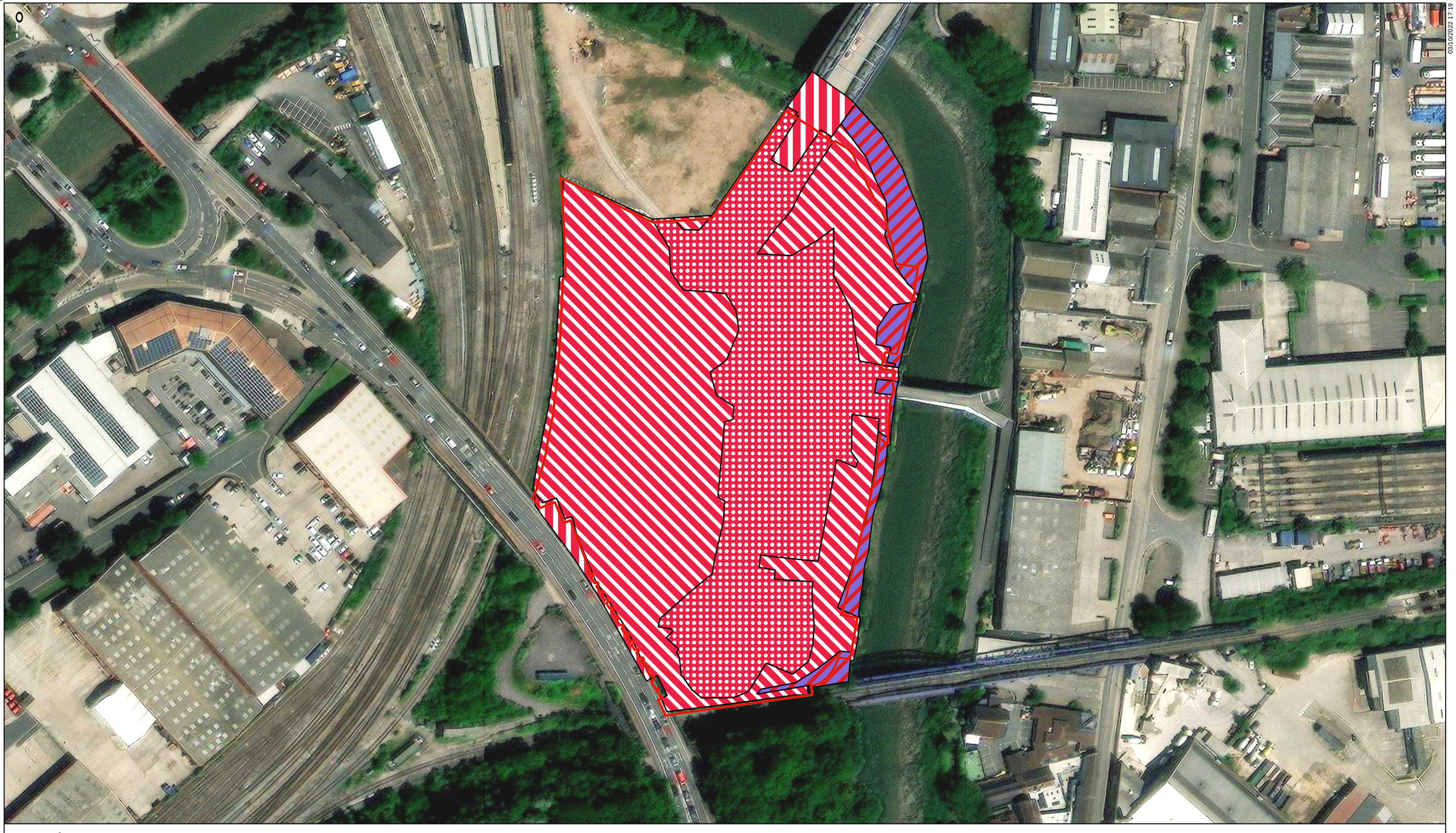
Figure 3: UK Habitat Classification Map

A3



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Legend

- RED LINE BOUNDARY

UK HABITAT CLASSIFICATION:

- h3 - DENSE SCRUB
- u1a - OPEN MOSAIC HABITAT ON PREVIOUSLY DEVELOPED LAND
- u1b - DEVELOPED LAND; SEALED SURFACE
- u1c - ARTIFICIAL UNVEGETATED, UNSEALED SURFACE

Metres

0 15 30 60

Coordinate System: British National Grid

Rev	Date	By	Chkd	Appd
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TEMPLE ISLAND ENABLING WORKS

Drawing Title

UK HABITAT CLASSIFICATION MAP

Scale at A3

1:1,500

Role

ECOLOGY

Suitability

S3

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FIGURE 3

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