

AtkinsRéalis



Biodiversity Net Gain Feasibility Assessment

Trant Engineering Ltd

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RACTON BOOSTER STATION

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Contents

Executive Summary	6
1. Introduction	7
1.1 Terms of Reference	7
1.2 The Proposed Scheme	7
1.3 The Site	8
1.4 Relevant Legislation and Policy	8
1.4.1 Legislation	8
1.4.2 Policy	8
1.5 Scope of the Assessment	9
2. Methodology	11
2.1 Data Collection, Manipulation and Editing	11
2.1.1 Desk Study	11
2.1.2 Baseline Habitats	12
2.1.3 Post-Development Habitats	12
2.2 Calculating Biodiversity Units using the Metric	13
2.3 Mitigation Hierarchy	14
2.4 BNG Good Practice Principles	14
2.5 Assumptions and Limitations	16
3. Baseline Conditions	17
3.1 Desk Study	17
3.1.1 Irreplaceable Habitat	17
3.1.2 Statutory Designated Sites	17
3.1.3 Priority Habitats	17
3.1.4 Strategic Significance	17
3.2 Habitat Baseline	19
3.3 Hedgerow Baseline	19
3.4 Watercourse Baseline	20
4. Feasibility of Biodiversity Net Gain	21
4.1 Retention	21
4.1.1 Habitat Retention	21
4.1.2 Hedgerow Retention	23
4.2 Creation and Enhancement	24
4.2.1 Area Habitat Creation and Enhancement	25
4.2.2 Linear Hedgerow Creation	27
4.3 Trading Summary	28
4.3.1 Area Habitat Module	28
4.3.2 Linear Hedgerow Module	28
4.4 Summary of BNG Feasibility	29



4.5	Opportunities for Additional Biodiversity Enhancements	29
5.	Conclusion	30
	Appendices	32
Appendix A.	Scheme Plans	33
A.1	Site Location Plan	33
A.2	Landscape Proposals Plan	35
Appendix B.	Habitat Baseline Plan	37
Appendix C.	Condition Assessment Sheets.....	39
Appendix D.	Habitat Post-Development Plan	47

Tables

Table 2-1 - BNG Good Practice Principles	14
Table 3-1 – Habitat Baseline	19
Table 3-2 – Hedgerow Baseline	20
Table 4-1 – Habitat Retention.....	22
Table 4-2 - Hedgerow Retention	23
Table 4-3 – Metric Trading Rules (Rule 3)	24
Table 4-4 – Area Habitat Creation Proposals	25
Table 4-5 – Habitat Units Delivered.....	26
Table 4-6 - Habitat Enhancement Proposals.....	26
Table 4-7 – Hedgerow Creation Proposals	27
Table 4-8 - Hedgerow Units Delivered	27

Figures

Figure 2-1 - Calculation of Biodiversity Units using the Metric	13
Figure 5-1 - Statutory biodiversity metric Headline Results	30
Figure 5-2 - Site Location Plan	33
Figure 5-3 - Landscape Proposals Plan	35
Figure 5-4 - Habitat Baseline Plan.....	37



Figure 5-5 - Habitat Post-Development Plan.....	47
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Executive Summary

Scheme	Portsmouth Water (PW) are looking to identify ways in which they can improve future resilience of drinking water supplies for the communities they provide water to. As part of this, a new pumping station is required to provide PW with the ability to transfer flow from Farlington Reservoir to Racton Reservoir. As such, the Proposed Scheme consists primarily of a water pumping station unit that will connect to PW's existing water pipeline system in order to safeguard their pressurised water supply network. The proposed water pumping station unit will be 81.65 m ² in area, however, some minor ancillary works are also required within the wider Site. The Site is approximately 850 m ² /0.1 ha in size.
Desk studies and field surveys	A desk study was undertaken in March 2024. Hampshire Biodiversity Information Centre was contacted for records of locally designated sites for nature conservation and protected and priority species and habitats. An ecological walkover survey including habitat condition assessments was undertaken on 08/02/2024. An updated walkover survey and condition assessment was undertaken on 28/08/2024.
Irreplaceable habitats	No irreplaceable habitats are present within the desk study search area.
BNG commitments	An 8 m length of hedgerow priority habitat is to be permanently lost to facilitate the construction of the pumping station. Temporary and permanent habitat loss of other neutral grassland will also occur as a result of the Proposed Scheme. To ensure habitat loss is minimised, the size of the working area, access routes and storage areas etc have been reduced as far as possible. Habitat creation is to take place to allow for the provision of a native species rich hedgerow to act as screening of the pumping station, and also with the provision of newly created habitats in areas where habitat loss is to be temporary. Habitat creation works are to be undertaken after the completion of construction works in accordance with a Habitat Management and Monitoring Plan.
Actions required to deliver BNG	The project has committed to achieving BNG through the enhancement of the other neutral grassland from poor to moderate. The individual trees on site are also retained and some of the hedgerow is to be retained. A new species-rich hedgerow will also be implemented in the Proposed Scheme.

1. Introduction

1.1 Terms of Reference

AtkinsRéalis, has been instructed by Portsmouth Water (PW) to provide a Biodiversity Net Gain (BNG) Feasibility Assessment in relation to the application for the construction of Racton pumping station (hereafter referred to as 'the Scheme'). The Scheme is located next to Trosnant Road in Havant, Hampshire at PO9 3BB; the footprint of the Scheme (hereafter referred to as 'the Site') is shown on the Site Location Plan provided on drawing number S847.11-IDS-PW-RT-DR-C-0010 in Appendix A.

The British Standard BS 8683:2021¹ defines BNG as “a specific, quantifiable outcome from project activities that deliver demonstrable benefits for biodiversity compared to the baseline situation.”

BNG is an approach which aims to leave the natural environment in a measurably better state than beforehand. Biodiversity metrics provide a way of measuring and accounting for biodiversity losses and gains resulting from development and/or land management change. To measure and account for biodiversity losses and gains resulting from the Scheme, a BNG assessment has been undertaken using the Statutory Biodiversity Metric published by Defra².

This report is intended to inform outline project design options, including site location/layout and construction methods, that will maximise the Scheme's ability to deliver BNG.

1.2 The Proposed Scheme

PW are looking to identify ways in which they can improve future resilience of drinking water supplies for the communities they provide water to. As part of this, a new pumping station is required to provide PW with the ability to transfer flow from Farlington Reservoir to Racton Reservoir.

As such, the Proposed Scheme consists primarily of a water pumping station unit that will connect to PW's existing water pipeline system in order to safeguard their pressurised water supply network.

The following works are proposed as part of the Scheme:

- Proposed water pumping station unit with pitched roof;
- Proposed concrete and “Grasscrete” hardstanding areas;
- Proposed kiosk unit – for new electricity substation;
- Minor ground reprofiling works;
- Washout and Bypass chambers;
- Surface boxes for buried valves;
- Flow meter chamber;
- Surface water drainage chambers;

¹ The British Standards Institution 2021. BS 8683:2021 Process for designing and implementing Biodiversity Net Gain – Specification. BSI Standards Limited 2021.

² Defra (2023). *Statutory Biodiversity Metric tools and guides*. [Available at: [Statutory biodiversity metric tools and guides - GOV.UK](https://www.gov.uk/guides/statutory-biodiversity-metric-tools-and-guides) (www.gov.uk)] [Accessed 08/07/2024]

- Dropped kerb for vehicular access; and
- 1 m high removable bollards.

The details of the Scheme, as they are currently understood, are shown on the Scheme Landscape Proposals Plan provided in Appendix A.

1.3 The Site

The Site is located at Ordnance Survey National Grid reference (OSNGR) SU 7115 0683 in Havant. It is formed of other neutral grassland, with a group of alder trees and a species-rich hedgerow to the east. The Site is bound by Trosnant Road to the north, Brookfield Close to the east, New Road to the south and Stockheath Lane to the west. The Site is located in an urban setting. To the west of Stockheath Lane is an area of green space associated with the Hermitage Stream and Hawthorn Walk, with the stream being located 50 m west of the Site. The Site is approximately 0.09 ha and is shown in Appendix A.

Within this report, any use of the term 'on-site' refers to the Site as described above, i.e. all land within the red line boundary of the Scheme. Any reference to 'off-site' is to any land outside of the Site (regardless of ownership) which may be considered in the assessment if delivering the required BNG is not feasible within the Site.

1.4 Relevant Legislation and Policy

1.4.1 Legislation

The Environment Act was given royal assent in November 2021. This is an act to make provision about targets, plans and policies in relation to the environment, including Part 6 of the Environment Act 2021 'nature and biodiversity', which allows for biodiversity gain in planning.

In England, Schedule 14 of the Environment Act 2021 makes provision for a 10% biodiversity gain to be a condition of planning permission through amendment of the Town and Country Planning Act 1990. It also makes provision for habitat enhancements undertaken to deliver biodiversity gain to be maintained for a period of at least 30 years after the development is completed.

Schedule 14 of the Environment Act 2021 was brought into force on 12 February 2024; BNG is now mandatory under Schedule 7A of the Town and Country Planning Act 1990 for most types of development. This Scheme is within the scope of mandatory BNG.

1.4.2 Policy

The National Planning Policy Framework (NPPF)³ emphasises the importance of protecting and enhancing the natural environment. The NPPF approach to BNG is set out in Paragraph 185b, which is to:

Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

³ Department for Levelling Up, Housing and Communities (December 2023). *National Planning Policy Framework*. .

“Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”

The NPPF “provides a framework within which locally-prepared plans can provide for sufficient housing and other development in a sustainable manner”. It is understood that Havant Borough Council follows national guidance with regard to BNG and has not set independent targets.

The Havant Borough Core Strategy⁴ is the current planning policy for Havant along with the ‘Local Plan (Allocations)’ which is discussed below. The Core Strategy was adopted in 2011 and sets out the planning framework until 2026. The Emerging Local Plan (currently planned for adoption in 2025) will replace the core strategy and is hoped to be adopted in 2020. Policies within the Core Strategy that are relevant to the biodiversity assessment are provided below:

- Policy CS11: Protecting and Enhancing the Special Environment and Heritage of Havant Borough.
- Policy CS13: Green Infrastructure.
- DM8 Conservation, Protection and Enhancement of Existing Natural Features.

The Havant Borough Biodiversity Strategy (2019)⁵ also states that:

“Development which results in harm to the local ecological network of Havant Borough will not be permitted unless the need for and benefits of the development outweighs the harm; if harm cannot be avoided measures which mitigate or compensate that harm will be required. Applications for development should include adequate and proportionate information to enable a proper assessment of the implications for the local Ecological Network. They should also be supported by mitigation plans and or compensation plans informed by the assessment of harm which would deliver a net gain for biodiversity and which set out the long-term management of any measures”.

1.5 Scope of the Assessment

BNG is a specific, measurable outcome of project activities that delivers demonstrable and quantifiable benefits to biodiversity compared to the baseline situation. Biodiversity metrics provide a way of measuring and accounting for biodiversity losses and gains resulting from development and/or land management change.

This BNG Feasibility Assessment quantifies the baseline biodiversity value of land within the Site (using habitat as a proxy and measured in biodiversity units), quantifies the habitats to be lost, retained and/or enhanced, and predicts the post-development biodiversity units to be delivered as part of the Scheme. The assessment is based on the proposed landscape design plan (see Appendix A) available at the time of assessment (24/09/2024).

The Statutory Biodiversity Metric², hereafter referred to as ‘the Metric’, has been used to calculate biodiversity units and measure the change in biodiversity at the Site as a result of the Scheme. The Metric is an updated version of the original biodiversity metric piloted by Defra in 2012 and its subsequent revisions (Biodiversity Metric 2.0 beta test version (2019), Biodiversity Metric 3.0 (2021), Biodiversity Metric 3.1 (2022) and

⁴ <https://www.havant.gov.uk/sites/default/files/documents/ADOPTED%20CORE%20STRATEGY%20.pdf>

⁵ Havant Borough Biodiversity Strategy.pdf

Biodiversity Metric 4.0), building on the knowledge and experience gained across a variety of different sectors since the Defra pilot.

The scope of this assessment is to inform PW of the feasibility of the Scheme delivering BNG, based on the current design of the Scheme. Portsmouth Water have committed to achieving biodiversity net gain on site by enhancing the other neutral grassland on Site, creating a new species-rich hedgerow and retaining all of the individual trees and some of the species-rich native hedgerow on the Site.

The methods and assumptions made while using the Metric are outlined in Section 2. The results of the Metric calculations are set out in Sections 3 and 4, recommendations are made in Section 5, followed by overall conclusions in Section 6.

2. Methodology

2.1 Data Collection, Manipulation and Editing

2.1.1 Desk Study

2.1.1.1 Statutory Designated Sites and Irreplaceable Habitat

A desk study was undertaken in March 2024 to inform the Ecological Impact Assessment (EclA)⁶ of the Scheme. In relation to this BNG Feasibility Assessment, the desk study was used to evaluate the potential for important ecological features, and how their presence may influence the feasibility of delivering BNG, within and adjacent to the Site. Impacts to national statutory designated sites for nature conservation and irreplaceable habitats are not adequately measured by the Metric and they require separate consideration that complies with relevant policy and legislation.

To identify any designated sites for nature conservation, irreplaceable habitat and/or priority habitats within or adjacent to the Site, the following online data sources were accessed:

- Multi-Agency Geographic Information for the Countryside (MAGIC)⁷; and
- Ancient Tree Inventory⁸.

2.1.1.2 Strategic Significance

The desk study was also used to identify any local biodiversity strategies and plans, as set by Havant Borough Council, to determine the strategic significance of the Site and/or habitats within the Site. The Metric applies a strategic significance score based on whether the location of a site and/or the baseline habitats present or proposed habitat interventions have been identified as being locally important for biodiversity. The Metric guidance⁹ recommends use of the Local Nature Recovery Strategy (LNRS)¹⁰ to determine strategic significance. In this case, the responsibility of the LNRS falls to Hampshire County Council. However, as they have not published an LNRS yet, the following online data sources were accessed to determine strategic significance:

- Buglife B-Lines¹¹;
- Havant Borough Biodiversity Strategy 2019¹²;
- The Havant Borough Core Strategy (2011)¹³; and

⁶ Ecological Impact Assessment: Racton Pumping Station. August 2024. AtkinsRéalis.

⁷ magic.defra.gov.uk. 2022. Magic Map Application. [online] Available at: <https://magic.defra.gov.uk/> [Accessed March 2024].

⁸ ati.woodlandtrust.org.uk. 2022. Ancient Tree Inventory – Woodland Trust. [online] Available at: <https://ati.woodlandtrust.org.uk/> [Accessed March 2024].

⁹ Department for Environment, Food and Rural Affairs (February 2024). The Statutory Biodiversity Metric User Guide.

¹⁰ Information available online at: [Local nature recovery strategies - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/local-nature-recovery-strategies) [Accessed: September 2024].

¹¹ [B-Lines - Buglife](https://www.buglife.org.uk/) [Accessed September 2024].

¹² Havant Borough Council (2019) Havant Borough Biodiversity Strategy. Available at URL: [download \(havant.gov.uk\)](https://www.havant.gov.uk/sites/default/files/documents/ADOPTED%20CORE%20STRATEGY%20.pdf)

¹³ <https://www.havant.gov.uk/sites/default/files/documents/ADOPTED%20CORE%20STRATEGY%20.pdf>

- Havant Borough Council Local Plan (Allocations) Adopted Version (2014)¹⁴.

2.1.2 Baseline Habitats

Pre-development baseline biodiversity units were calculated using habitat survey data collected in September 2024. The survey comprised identifying the habitat types present within the Site using the classification system that the Metric predominantly uses to calculate biodiversity units, i.e. the UK Habitat Classification (UKHab)¹⁵, and undertaking condition assessments of the habitats. Condition assessment scores, which reflect the quality of a habitat, were assigned using professional judgement and the criteria set out in the relevant condition assessment sheets provided in Technical Annex-1 of the Metric¹⁶.

The survey was led by a suitably experienced Atkins ecologist with a Level 4 Field Identification Skills Certificate (FISC) and who has appropriately evidenced their competency as being capable in the identification of habitats and plant species in accordance with the CIEEM Competency Standard for Preliminary Habitat Survey¹⁷ and Atkins' internal Habitat Survey and BNG competency framework.

The survey data was collected using ESRI ArcGIS Fieldmaps and then exported and analysed using QGIS. The habitat mapping data was processed by GIS specialists to remove small overlaps and gaps between polygons that result from digitising at low resolution. The habitat survey data was then clipped to exclude habitat data outside of the Site boundary. Using GIS, areas (measured in ha) were calculated for each area habitat feature; lengths (measured in km) were calculated for linear hedgerow and watercourse features. These measurements were further broken down by condition assessment score to give the overall area/length of each habitat type in each condition.

2.1.3 Post-Development Habitats

The landscape design plan (see Appendix A) for the Scheme has been used to inform the post-development scenario.

Target condition scores for the proposed post development habitat interventions have been assigned based on the realistic likelihood of achieving the target condition. The assumptions made when assigning a target condition for the proposed habitat interventions, based on the relevant criteria set out within the relevant condition assessment sheets of the Metric¹⁸, are set out in Section 4 below.

¹⁴<https://www.easthants.gov.uk/sites/default/files/documents/DP01%20East%20Hampshire%20District%20Local%20Plan%20Joint%20Core%20Strategy%20COMPLETE.pdf>

¹⁵ Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). UK Habitat Classification V1.1. [online] Available at: <http://ukhab.org>

¹⁶ The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology (2024). Natural England. Available at: [Statutory Biodiversity Metric Condition Assessments- Feb24.xlsx \(live.com\)](https://www.naturalengland.org.uk/Data-and-Information/Statutory-Biodiversity-Metric/Technical-Annex-1-Condition-Assessment-Sheets-and-Methodology)

¹⁷ CIEEM. 2022. Competency Standard for Preliminary Habitat Survey. [online] Available at: <https://cieem.net/wp-content/uploads/2022/05/Preliminary-Habitat-Survey-Competency-Standard-May-2022.pdf>

¹⁸ The Statutory Biodiversity Metric – Technical Annex 1: Condition Assessment Sheets and Methodology (2024). Natural England. Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fmedia%2F65c60f00cc433b000ca90b33%2FStatutory_Biodiversity_Metric_Condition_Assessments-_Feb24.xlsx&wdOrigin=BROWSELINK

2.2 Calculating Biodiversity Units using the Metric

The Metric uses a number of measures to quantify baseline biodiversity value for each habitat type within a site boundary. These measures include the habitat's distinctiveness (a measure based on the type of habitat and its distinguishing features), its condition (a measure of the habitat against its ecological optimum state) and its size (ha for area habitat/km for linear habitat). In addition, the local strategic significance of a site and/or the habitats within it is taken into account by applying a spatial multiplier.

Area units and hedgerow units are calculated in separate modules of the Metric and the delivery of biodiversity units, including the overall net unit change for a site, are reported separately for each module.

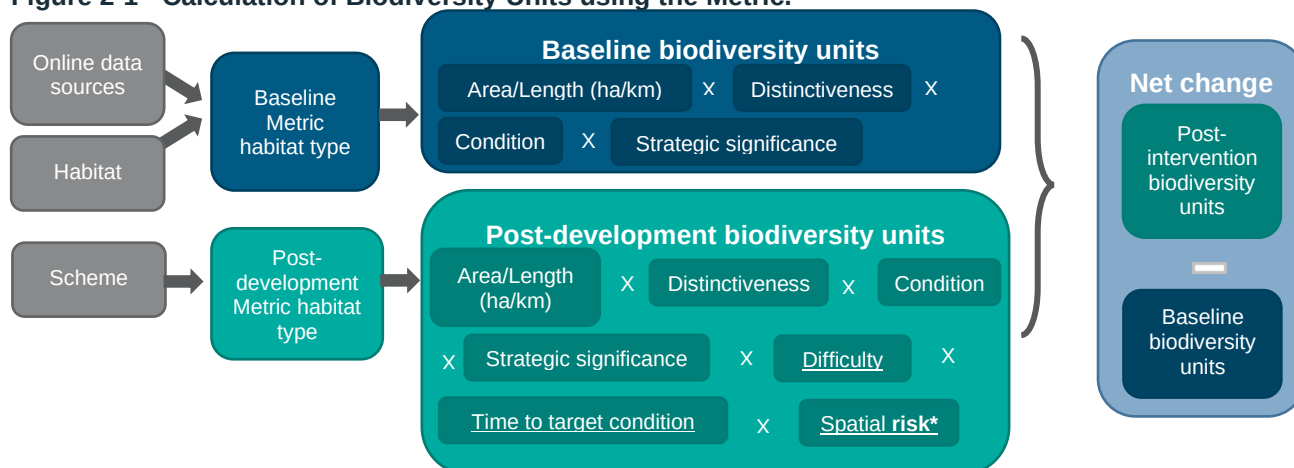
A habitat's distinctiveness score is derived from its intrinsic biodiversity value, reflecting the rarity of the plant community, the time it takes to reach maturity, its value to fauna, and its ecosystem function. This score is pre-assigned and is pre-populated in the Metric.

Post-development biodiversity units are calculated the same way but with the addition of risk multipliers that take into account the difficulty and time it takes to create new habitat or enhance existing habitat, see Figure 2-1 below. These temporal and risk related multipliers are set within the Metric and cannot be changed. Where habitat creation or enhancement is off-site, biodiversity units are calculated the same way but a spatial risk multiplier is applied based on the distance of habitat creation or enhancement to the site of habitat loss.

The Metric also takes into account whether habitat creation or enhancement is delivered in advance of any impact it is compensating for or whether there will be any significant delay in an intervention relative to the impact. If taken into account, the standard temporal risk multiplier is adjusted accordingly.

To calculate the overall net change in biodiversity units, the baseline units are subtracted from the post-development units, as detailed in Figure 2-1 below.

Figure 2-1 - Calculation of Biodiversity Units using the Metric.



NB. Illustration does not fully depict calculation of watercourse units; additional multipliers taking into account watercourse and riparian encroachment are applied.

Text underlined indicates a risk factor applied when creating or enhancing habitats.

*Applies to off-site habitat interventions only.

2.3 Mitigation Hierarchy

In accordance with good practice¹⁹, the principles of the mitigation hierarchy and the avoidance of impacts to irreplaceable habitats must be applied when committing to achieving BNG. This is reinforced through the publication of the British Standard BS 8683:2021¹.

The sequential approach to applying the mitigation hierarchy is to:

1. Avoid – Where possible habitat damage should be avoided.
2. Minimise – Where possible habitat damage and loss should be minimised.
3. Remediate – Where possible any damaged or lost habitat should be restored.
4. Compensate – As a last resort, damaged or lost habitat should be compensated for²⁰.

Application of the mitigation hierarchy is encouraged by the Metric because BNG can be more easily achieved by avoiding the loss of habitat through either retention or enhancement. Principle 1 of the Metric adds “*The use of this, Metric does not override the ecological mitigation hierarchy and other requirements (such as consenting or licensing processes, for example woodlands).*”.

2.4 BNG Good Practice Principles

The User Guide for the Metric includes rules and principles. Amongst these Principle 2 states “*This Metric should be used in accordance with established good practice guidance and professional codes*”.

To claim BNG, evidence that demonstrates a project has clearly applied all ten of the good practice principles for achieving BNG²¹, as detailed in Table 2-1 below, must be provided. Adhering to all principles together underpins the good practice required for achieving and sustaining BNG.

Table 2-1 - BNG Good Practice Principles

Principle	In practice
Apply the mitigation hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.
Avoid losing biodiversity that cannot be offset by gains elsewhere	Avoid impacts on irreplaceable biodiversity – these impacts cannot be offset to achieve no net loss or net gain.
Be inclusive and equitable	Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to net gain. Achieve net gain in partnership with stakeholders where possible, and share the benefits fairly among stakeholders.

¹⁹ CIEEM, CIRIA, IEMA. Biodiversity net gain. Good practice principles for development. A practical guide. CIRIA C776a. London, 2019.

²⁰ Compensation should be undertaken on-site. If this is not possible then off-site habitat compensation may be an option; however, this should be undertaken as close to the on-site area as possible.

²¹ CIEEM-CIRIA-IEMA. 2016. Biodiversity Net Gain – Good practice principles for development.

Address risks	Mitigate difficulty, uncertainty and other risks to achieving net gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between losses occurring and the gains being fully realised.
Make a measurable net gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.
Achieve the best outcomes for biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly justified choices when: Delivering compensation that is ecologically equivalent in type, amount and condition and that accounts for the location and timing of biodiversity losses. Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation. Achieving net gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels Enhancing existing or creating new habitat Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity.
Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).
Create a net gain legacy	Ensure net gain generates long-term benefits by: Engaging stakeholders and jointly agreeing practical solutions that secure net gain in perpetuity^{22,23}. Planning for adaptive management and securing dedicating funding for long-term management. Designing net gain for biodiversity to be resilient to external factors, especially climate change Mitigating risks from other land uses Avoiding displacing harmful activities from one location to another Supporting local-level management of net gain activities
Optimise sustainability	Prioritising BNG and, where possible, optimise the wider environmental benefits for a sustainable society and economy.
Be transparent	Communicate all net gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

²² For development in the UK, the expectation is that compensation sites will be secured for at least the lifetime of the development (e.g. often 25-30 years) with the objective of net gain management continuing in the future.

²³ For projects being consented through the Town and Country Planning Act 1990, the Environment Act 2021 now makes provision for habitat enhancements undertaken to deliver biodiversity gain to be maintained for a period of at least 30 years after the development is completed.

2.5 Assumptions and Limitations

It is currently assumed that some of the other neutral grassland and species-rich native hedgerow will be lost by the Proposed Scheme, but the group of alder trees and some other neutral grassland will be retained and some to be enhanced.

It is assumed the other neutral grassland area to be retained will be restored to its baseline condition within two years from the time of the initial site clearance and the standard time to target condition has been adjusted accordingly. If it is expected that the duration for restoring the grassland will be longer than two years, the metric will need to be updated to reflect the loss of area of grassland. As detailed design progresses opportunities to reduce on-site habitat loss will be sought and any project design change will be reflected in the calculation of biodiversity units accordingly.

It is assumed that the other neutral grassland area to be enhanced will have the target condition of 'moderate', which will be achieved through the seeding of a species-rich meadow mix. Further details on condition enhancement can be found in Section 4.2.1.

The site boundary provided was not georeferenced and therefore had to be manually georeferenced using satellite imagery. Therefore, the site boundary and subsequent baseline area calculations produced are an approximation, resulting in the BNG assessment being an estimate of the habitat and hedgerow unit loss. However, given the size of the Site and the nature of the site boundary, it is expected that this approximation will create a marginal standard deviation meaning that the BNG Assessment score provided is still considered to be an accurate representation of the potential impact of the Proposed Scheme.

It is assumed that an appropriate BNG management and monitoring plan will be implemented for the duration of the maximum time for the habitat creation proposals to reach their target condition and to give surety that the Scheme will deliver the predicted net gain in biodiversity units. It is then assumed that the habitats will be subject to suitable management to maintain that condition.

3. Baseline Conditions

3.1 Desk Study

3.1.1 Irreplaceable Habitat

There are no irreplaceable habitats or veteran and ancient trees recorded within the Site. No potential ancient or other veteran trees were recorded during the survey. As a result, irreplaceable habitats and veteran and ancient trees are not discussed further in this report.

3.1.2 Statutory Designated Sites

There are no national statutory designated sites within the Site. As a result, national statutory designated sites are not discussed further in this report.

3.1.3 Priority Habitats

The desk study search for priority habitats on MAGIC found that there are no priority habitats recorded within the Site.

However, the field survey identified hedgerow priority habitat within the Site boundary. A loss of 8 m of this habitat type is anticipated.

3.1.4 Strategic Significance

Where an LNRS has been published, this should be used to assign strategic significance. Havant Borough Council have not yet published an LNRS, and as such, various other sources have been used, as outlined in Section 1.4.2.

There are no areas covered by statutory and or non-statutory nature conservation designations or irreplaceable habitats within the Site. No veteran trees or ancient woodlands were identified within the Site during the desk study.

Buglife's B-Line Network¹¹ was reviewed for inclusion of the Site. The B-Line Network is a response to The National Pollinator Strategy for bees and other pollinators in England. This strategy was published in 2014 and is a ten-year strategy to help pollinating insects survive. The B-Line Network is of strategic significance and any proposed enhancement of existing grassland to more floristically rich neutral grassland would contribute to the strategic objectives of this national strategy. The Proposed Scheme does not fall into the network.

Policy DM8: Conservation, Protection and Enhancement of Existing Natural Features in the Havant Borough Core Strategy (2011)¹³ states that:

"Development will only be permitted where it protects and enhances local habitats and landscape distinctiveness, and which addresses all of the relevant criteria as set out below:

1. *Protects natural features of nature conservation and/or amenity importance on the site, for example trees, woodlands, hedgerows, soils, streams, stream corridors, springs, ditches or ponds from damage, destruction and a deterioration in quality.*

2. *Sympathetically incorporates existing features into the overall design of the scheme including measures taken to ensure their continued survival.*
3. *Provides new landscape works that integrate successfully with the local environment and existing natural features, using local materials and plant species and making provision for future maintenance of new landscape works associated with new developments.*
4. *Ensures sequences of greenspaces are maintained and protects the attractiveness and visual amenity of all green open spaces that contribute to the identity of the borough.*

Additionally, Policy CP21: Biodiversity in Havant Borough Council Local Plan (Allocations) Adopted Version (2014)¹⁴ states that new development will be required to “*extend specific protection to, and encourage enhancement of, other sites and features which are of local value for wildlife, for example important trees, rivers, river corridors and hedgerows, but which are not included in designated sites.*”

Based on the documents discussed above, the baseline and created individual trees and species-rich native hedgerow have been classified as ‘medium’ strategic significance as the hedgerows and trees are identified as being important for wildlife in the Local Plan. All other baseline habitats and post-development habitats within the Site have been assigned as ‘low’ strategic significance.

3.2 Habitat Baseline

A summary of the habitat baseline of the Site is provided in Table 3-1 below.

The area-based habitat features present within the Site are shown on the Habitat Baseline Plan provided in Appendix B.

Where condition assessments are required, the condition assessment sheets are provided in 0. These provide summary descriptions of the area-based habitat features present and the results of their condition assessment.

Table 3-1 – Habitat Baseline

Baseline Ref ²⁴	Broad Habitat	Habitat Type	Area (ha)	Distinctiveness		Condition		Strategic Significance		Ecological Baseline
				Band	Score	Band	Score	Band	Multiplier	
1	Grassland	Other neutral grassland	0.0913	Medium	4	Poor	1	Low	1	0.37
2	Individual trees	Urban tree	0.0489 ²⁵	Medium	4	Good	3	Medium	1.1	0.65
Total Habitat Area (ha)			0.14							
Total Site Area (ha) excluding area of individual trees			0.09							
Total Habitat Units										1.01

3.3 Hedgerow Baseline

A summary of the hedgerow baseline of the Site is provided in Table 3-2 below.

The linear hedgerow features present within the Site are shown on the Baseline Habitat Plan provided in Appendix B.

²⁴ Refer to Habitat Baseline Plan

²⁵ The baseline includes 3 individual medium trees. The Metric allows the value of individual trees to be measured and has a 'tree helper' function to automate an area calculation that can be used in the Metric. This area is not included in the total Site area.

Where condition assessments are required, the completed condition assessment sheets are included in 0. These provide summary descriptions of the hedgerow features present and the results of their condition assessment.

Table 3-2 – Hedgerow Baseline

Baseline Ref ²⁶	Hedgerow Type	Length (km)	Distinctiveness		Condition		Strategic Significance		Ecological Baseline
			Band	Score	Band	Score	Band	Multiplier	Hedgerow Units
1	Species-rich native hedgerow	0.0312	Medium	4	Good	3	Medium	1.1	0.41
Total Length (km)		0.03							
Total Hedgerow Units									0.41

3.4 Watercourse Baseline

Linear watercourse features are not present in the Site.

²⁶ Refer to Habitat Baseline Plan

4. Feasibility of Biodiversity Net Gain

The feasibility of the Scheme delivering BNG is based on the current landscape proposal plan (see Appendix A). The following sections summarise the habitat intervention proposals, which have taken into account the mitigation hierarchy and good practice principles for achieving BNG, and should be read in conjunction with the completed Metric calculation tool provided with this assessment.

The post-development scenario and proposed habitat interventions, illustrated using the Metric habitat types, are shown on the Habitat Post-Development Plan provided in Appendix C.

4.1 Retention

4.1.1 Habitat Retention

A summary of the habitat baseline of the Site which is proposed to be retained²⁷ (and/or enhanced²⁸) is provided in Table 4-1 below. Based on the current Scheme proposals, there will be a total loss of 0.02 ha of area habitat features. It is important to note that 'Urban trees' are point features; the Metric has calculated an 'artificial' area to generate biodiversity units. This area does not count towards the total area of the Site. Therefore, any habitat creation proposals (including built development) need to address the loss of 0.02 ha of area habitat features within the Site.

The habitat enhancement proposals are set out in Section 4.2.1.2.

²⁷ Habitat retention is the retention of baseline habitat in its baseline condition with no proposals to enhance or create the habitat.

²⁸ Habitat enhancement is either an improvement in baseline habitat condition or a change in baseline habitat to a higher distinctiveness habitat within the same broad habitat group.

Table 4-1 – Habitat Retention

Baseline Ref ²⁹	Broad Habitat	Habitat Type	Baseline Area (ha)	Ecological Baseline Habitat Units	Area Retained (ha)	Area Enhanced (ha)	Baseline Units Retained	Baseline Units Enhanced	Area Habitat Lost (ha)	Baseline Units Lost
1	Grassland	Other neutral grassland	0.0913	0.37	0.0169	0.0529	0.07	0.21	0.02	0.09
2	Individual trees	Urban tree	0.0489	0.65	0.0489	0.00	0.65	0.00	0.00	0.00
Total Area Retained (ha)					0.07					
Total Area Enhanced (ha)						0.05				
Total Baseline Units Retained							0.71			
Total Baseline Units Enhanced								0.21		
Total Area Habitat Lost (ha)									0.02	
Total Area Lost (excluding area of Individual trees and Green walls) (ha)									0.02	
Total Baseline Units Lost										0.09

In applying the mitigation hierarchy, the Scheme has sought to minimise the loss of individual trees by retaining all baseline individual trees and has sought to retain as much 'other neutral grassland' as is practicably possible. Where loss cannot be avoided this is because the area is required for the development of the new pumping station.

²⁹ Refer to Habitat Baseline Plan

4.1.2 Hedgerow Retention

A summary of the hedgerow baseline of the Site which is proposed to be retained is provided in Table 4-2 below. Based on the current Scheme proposals, there will be a total loss of 0.03 km of hedgerow features.

Table 4-2 - Hedgerow Retention

Baseline Ref ³⁰	Hedgerow Type	Baseline Length (km)	Ecological Baseline Hedgerow Units	Length Retained (km)	Length Enhanced (km)	Baseline Units Retained	Baseline Units Enhanced	Length Lost (km)	Baseline Units Lost
1	Species-rich native hedgerow	0.0312	0.41	0.0236	0.00	0.31	0.00	0.01	0.10
Total Length Retained (km)				0.02					
Total Length Enhanced (km)					0.00				
Total Baseline Units Retained						0.31			
Total Baseline Units Enhanced							0.00		
Total Length Lost (km)								0.01	
Total Baseline Units Lost									0.10

In applying the mitigation hierarchy, the Scheme has sought to minimise the loss of 'species-rich native hedgerow' to retain as much of the hedgerow length that is practicably possible. Where loss cannot be avoided this is because the area is required for the development of the new pumping station.

³⁰ Refer to Habitat Baseline Plan

4.2 Creation and Enhancement

The Metric sets out a number of rules and principles that must be followed in applying the Metric. Rule 3 is “*The trading rules of this metric must be followed*”. These trading rules set minimum habitat creation and enhancement requirements to compensate for specific habitat losses, based on habitat type and distinctiveness. The trading rules are set out in Table 4-3 below.

Table 4-3 – Metric Trading Rules (Rule 3)

Baseline Habitat Distinctiveness	Area Module	Hedgerow Module
Very High	Losses are not permitted within this metric AND bespoke assessment and compensation are required.	Losses must be replaced with hedgerow units of the same habitat type.
High	Losses must be replaced with area units of the same habitat type.	Losses must be replaced with hedgerow units of the same habitat type or of higher distinctiveness band.
Medium	Losses must be replaced by area units of either: Medium distinctiveness habitats within the same broad habitat type. Or Any habitat from a higher distinctiveness band (from any broad habitat type).	Losses must be replaced with hedgerow units of the same or higher distinctiveness band.
Low	Losses must be replaced with area units of the same or higher distinctiveness band.	Losses must be replaced with hedgerow units of the same or higher distinctiveness band.
Very Low	N/A	Losses must be replaced with hedgerow units of the same or higher distinctiveness band.

Natural England and other parties 2023. The Biodiversity Metric 4.0 User Guide. Natural England Joint Publication JP039.

The following sections on habitat and hedgerow creation and enhancement are based on the current design of the Scheme (see Appendix A). As this is a BNG Feasibility Assessment, a clear commitment to achieving BNG has not been recorded. To achieve BNG the above trading rules will need to be applied to compensate for habitat loss; this may mean revising the current design.

As stated in Section 2.5 it is assumed that habitat creation will be delayed by no more than two years. Therefore, the standard time to target condition has been applied to the proposed habitats.

4.2.1 Area Habitat Creation and Enhancement

4.2.1.1 Area Habitat Creation

Descriptions of the habitat creation proposals and assumptions for realistic target condition scores and reasons for selection of medium or high strategic significance are provided in Table 4-4 below.

Table 4-4 – Area Habitat Creation Proposals

Landscape Feature	Metric Habitat Type	Target Condition and Assumptions	Strategic Significance Rationale
Proposed Pumping station	Urban – Developed land; sealed surface	N/A - Other	N/A
Proposed trees	Individual trees – urban trees	Moderate – all newly planted trees to be native (field maple, silver birch or small leaved lime) with 100-120mm girth therefore will be small trees. The trees are considered to pass four criteria including A (tree is native), B (individual trees automatically pass this), D (there is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity, and there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height) and F (more than 20% of the tree canopy area is oversailing vegetation beneath), therefore classified as moderate condition. The trees will not be good condition as they will fail criterion C (tree is mature or more than 50% within the block are mature) and E (natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark).	Medium - the proposed trees are strategically significant due to Policy DM8: Conservation, Protection and Enhancement identifying the importance of protecting and enhancing trees in the Borough (see Section 2.1.1.2 for further details).

The number of habitat units delivered by the habitat creation proposals is shown in Table 4-5 below.

Table 4-5 – Habitat Units Delivered

Broad Habitat	Proposed Habitat Type	Area (ha)	Distinctiveness		Condition		Strategic Significance		Habitat Units Delivered
			Band	Score	Band	Score	Band	Multiplier	
Urban	Developed land; sealed surface	0.0214	V. Low	0	N/A - Other	0	Low	1	0.00
Individual trees	Urban tree	0.0163	Medium	4	Moderate	2	Medium	1.1	0.05
Total Habitat Area (ha)		0.04							
Total Site Area (ha) excluding area of individual trees		0.02							
Total Units									0.05

4.2.1.2 Area Habitat Enhancement

Descriptions of the habitat enhancement proposals and assumptions for realistic target condition scores are provided in Table 4-6 below. Strategic significance for all habitats to be enhanced remains the same as the baseline for these habitats (see Section 3.1.4). The Scheme involves the enhancement of 0.046 ha of other neutral grassland to generate 0.46 units.

Table 4-6 - Habitat Enhancement Proposals

Baseline Metric Habitat Type	Baseline Condition	Proposed Metric Habitat Type	Target Condition and Assumptions	Area (ha)	Units delivered
Grassland – other neutral grassland	Poor	Grassland – other neutral grassland	Moderate – An appropriate management plan, sympathetic to biodiversity, should be proposed which will increase the number of species to 10 or more to pass criterion F. This will be achieved through the seeding of a species-rich meadow mix. It is not considered likely that the management will allow for an irregular sward height or the presence of bare ground, therefore the grassland is considered unlikely to achieve a good condition.	0.0529	0.36

4.2.2 Linear Hedgerow Creation

4.2.2.1 Linear Hedgerow Creation

Descriptions of the hedgerow creation proposals and assumptions for realistic target condition scores and reasons for selection of medium or high strategic significance are provided in Table 4-7 below.

Table 4-7 – Hedgerow Creation Proposals

Landscape Feature	Metric Hedgerow Type	Target Condition and Assumptions	Strategic Significance Rationale
Proposed native hedgerow	Species-rich native hedgerow	Moderate – H2A5 species-rich native planting of transplants to give >5 species per 30 m section. It has an assumed height of less than 1.5 m in length (A1) and width (A2) based on the landscape design. It is assumed that management would allow a gap to be present at the base of the hedgerow (B1) and the canopy to be continuous (B2). As it is located within the enhanced other neutral grassland, it is assumed to have undisturbed ground on both sides of the hedgerow (C1 and C2). It is assumed to be managed regularly therefore free of invasive species (D1) but assumed to be subject to management or damage from the pumping station (D2). Therefore, it is assumed to not fail both attributes from any two functional groups, and as such is categorised as 'moderate' condition. If the hedgerow is either greater than 1.5 m in length or width (A1 or A2), it can achieve a 'good' condition.	Medium - the proposed hedgerow is strategically significant due to Policy DM8: Conservation, Protection and Enhancement identifying the importance of protecting and enhancing trees in the Borough. Policy CP21: Biodiversity in Havant Borough Council Local Plan (Allocations) Adopted Version (2014) ¹⁴ also highlights the importance of hedgerows (see Section 2.1.1.2 for further details).

The number of hedgerow units delivered by the hedgerow creation proposals is shown in Table 4-8 below.

Table 4-8 - Hedgerow Units Delivered

Proposed Hedgerow Type	Length (km)	Distinctiveness		Condition		Strategic Significance		Hedgerow Units Delivered
		Band	Score	Band	Score	Band	Multiplier	
Species-rich native hedgerow	0.024	Medium	4	Moderate	2	Medium	1.1	0.18
Total Length (km)	0.02							
Total Units								0.18

4.2.2.2 Hedgerow Enhancement

There are currently no proposals for hedgerow enhancement interventions.

4.3 Trading Summary

The following sections summarise whether or not the current Scheme complies with the trading rules of the Metric.

4.3.1 Area Habitat Module

4.3.1.1 Medium Distinctiveness Habitat

The Scheme will result in a net gain of 0.12 medium distinctiveness habitat units. This is due to a gain of 0.06 medium distinctiveness grassland ('other neutral grassland') units and 0.05 medium distinctiveness individual tree ('urban tree') units. As such, trading rules for medium distinctiveness habitats are met and the required biodiversity net gain is delivered.

4.3.1.2 Other Distinctiveness Habitats

The current Scheme does not result in the loss of any very high, high or low distinctiveness habitats.

4.3.2 Linear Hedgerow Module

4.3.2.1 Medium Distinctiveness Habitat

The Scheme will currently result in the net gain of 0.08 units of 'species-rich native hedgerow'. As such, trading rules for medium distinctiveness hedgerow are met and the required biodiversity net gain is delivered.

4.3.2.2 Other Distinctiveness Habitats

The current Scheme does not result in the loss of any very high, high or low distinctiveness hedgerows.

4.4 Summary of BNG Feasibility

At present, the current Scheme is predicted to meet all of the trading rules of the Metric and will result in a net gain of 0.12 habitat units, with a predicted total net change of 11.58%, and a net gain of 0.08 hedgerow units, with a predicted total net change of 18.56%.

The predictions are based on retention of hedgerow and individual trees, and management to enhance the condition of some of the other neutral grassland. They are also based on planned habitat creation. Following receipt of planning consent, a final Biodiversity Gain Plan and an appropriate Habitat Management and Monitoring Plan (HMMP) will need to be produced.

The biodiversity gain plan should:

- Demonstrate how the Scheme will meet the statutory BNG requirements.
- Provide evidence of the decisions made in this BNG assessment.
- Help Havant Borough Council determine that the Scheme meets the statutory BNG requirements.

4.5 Opportunities for Additional Biodiversity Enhancements

The following opportunities for additional biodiversity enhancements have also been identified:

- Enhancing retained grassland with native seed mixes and/or appropriate management to add bare ground and a varied sward height;
- Enhancing retained hedgerow with appropriate management to pass additional criterion (B1, C1 and/or C2) listed in 0 to improve the condition of the hedgerow.
- A pond could be created within the other neutral grassland which would benefit amphibian species as well as contributing towards BNG.

5. Conclusion

The Statutory Biodiversity Metric has been applied to the project, based on the project design at the time of submission of this assessment.

A screenshot of the headline results of the metric calculations is provided in Figure 5-1 below. The assessment shows that the Scheme is predicted to result in:

- A **net gain** of **0.12** habitat units, with a predicted total net change of **+11.58%**. The trading rules and statutory BNG requirements are met.
- A **net gain** of **0.08** hedgerow units, with a predicted total net change of **+18.56%**. The trading rules and statutory BNG requirements are met.
- Watercourse features have not been included in this assessment.

Figure 5-1 - Statutory biodiversity metric Headline Results

Racton Pumping Station Headline Results Scroll down for final results 		Return to results menu	
On-site baseline	Habitat units	1.01	
	Hedgerow units	0.41	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	1.13	
	Hedgerow units	0.49	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	0.12	11.58%
	Hedgerow units	0.08	18.56%
	Watercourse units	0.00	0.00%
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.12	
	Hedgerow units	0.08	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.12
	<i>Hedgerow units</i>	0.08
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	11.58%
	<i>Hedgerow units</i>	18.56%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
<i>Habitat units</i>	10.00%	1.01	1.11	0.00	No additional area habitat units required to meet target ✓
<i>Hedgerow units</i>	10.00%	0.41	0.45	0.00	No additional hedgerow units required to meet target ✓
<i>Watercourse units</i>	10.00%	0.00	0.00	0.00	No additional watercourse units required to meet target ✓

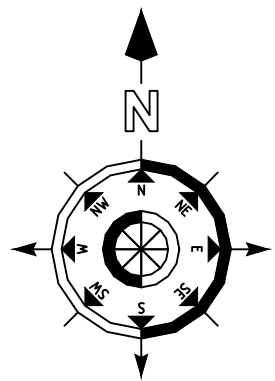
The undertaking of this BNG assessment has followed the mitigation hierarchy and the principles and rules of the Metric. At present, the Proposed Scheme meets the BNG requirements of a 10% net gain for both habitats and hedgerows. A Habitat Management and Monitoring Plan (HMMP) will be needed to secure the areas of onsite habitat creation and enhancement for the required 30 years.

APPENDICES

Appendix A. Scheme Plans

A.1 Site Location Plan

Figure 5-2 - Site Location Plan



- Notes:
1. ALL DIMENSIONS IN MILLIMETRES & ALL LEVELS IN METRES UNLESS SHOWN OTHERWISE.
 2. REPRODUCED BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF HMSO © CROWN COPYRIGHT & DATABASE RIGHT 2019. ALL RIGHT RESERVED ORDNANCE SURVEY LICENCE NUMBER 100053143

LEGEND

APPLICATION BOUNDARY

DRAWING REFERENCES

- S847.11-IDS-PW-RT-DR-C-0011 EXISTING SITE PLAN
S847.11-IDS-PW-RT-DR-C-0012 PROPOSED SITE PLAN
S847.11-IDS-PW-RT-DR-C-0013 PROPOSED EQUIPMENT PLANS
S847.11-IDS-PW-RT-DR-C-0014 PROPOSED ELEVATIONS
S847.11-IDS-PW-RT-DR-C-0015 PROPOSED BUILDING ELEVATIONS
S847.11-IDS-PW-RT-DR-C-0016 PROPOSED LGV / SITE ACCESS / EGRESS
S847.11-IDS-PW-RT-DR-C-0017 PROPOSED HGV / SITE ACCESS / EGRESS
S847.11-IDS-PW-RT-DR-C-0018 PROPOSED EQUIPMENT BUILDING SECTIONS



CURRENT REVISION CHANGES

1. REDLINE BOUNDARY UPDATED TO SUIT COMMENTS RECEIVED

P03	S3	MJS	KV	JO	RR	FOR REVIEW	25.03.24
P02	S3	MJS	KV	RR	POC	FOR REVIEW	19.01.24
P01	S3	MJS	KV	RR	RR	FOR REVIEW	18.12.23
Rev	Status Code	Dm By	Des By	Ckd By	App By	Description	Date

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S847.11-IDS-PW-RT-DR-C-0010

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REGISTERED IN ENGLAND No. 2536455



PIN:	S847.11	Scale:	1:1250	Sheet Size:	A1
Project Title:	RACTON BOOSTER TRANSFER PUMPING STATION				
Drawing Title:	SITE LOCATION PLAN				
Portsmouth Water Drawing Number:					Rev:
				P03	

A.2 Landscape Proposals Plan

Figure 5-3 - Landscape Proposals Plan

100
0 10
Millimetres

PROPOSED PLANTING SCHEDULE

PROPOSED TREE PLANTING					
Botanical name	Common name	Height	Girth	Root Zone	Specification
<i>Betula pendula</i>	Silver Birch	400-450cm	10-12cm	RB	2x: Selected Standard, clear stem minimum 200cm; 4 breaks
Trees shall be planted with suitable stakes, ties and guards.					
SPECIES RICH NATIVE HEDGEROW					
Botanical name	Common name	Specification	%		
<i>Acer campestre</i>	Field Maple	1+1, 60-90, B	5		
<i>Carpinus betulus</i>	Hornbeam	1+1, 60-90, B	2.5		
<i>Clematis vitalba</i>	Traveller's Joy	60-80, 2L	2.5		
<i>Corylus avellana</i>	Hazel	1+1, 60-90, B	5		
<i>Crataegus monogyna</i>	Hawthorn	1+1, 60-90, B	50		
<i>Fagus sylvatica</i>	Beech	1+1, 60-90, B	5		
<i>Ilex aquifolium</i>	Holly	60-80, 3L, C	2.5		
<i>Ligustrum vulgare</i>	Common Privet	1+1, 60-90, B	2.5		
<i>Lonicera periclymenum</i>	Honeysuckle	60-80, 2L	2.5		
<i>Malus sylvestris</i>	Common Crab Apple	1+1, 60-90, B	5		
<i>Prunus spinosa</i>	Blackthorn	1+1, 60-90, B	10		
<i>Rosa canina</i>	Dog Rose	1+1, 60-90, B	2.5		
<i>Ulmus glabra</i>	Wych Elm	1+1, 60-90, B	2.5		
<i>Viburnum opulus</i>	Guelder Rose	1+1, 60-90, B	2.5		
Planted 2No. Rows 500mm apart, linear spacing 300mm between centres, minor species in groups of 5-15. Plants to be protected with rabbit guards.					

SPECIES RICH MEADOW MIXTURE- OTHER NEUTRAL GRASSLAND Emorsgate EM4 Meadow Mixture for Clay Soils or equal approved		
Botanical name	Common name	%
<i>Achillea millefolium</i>	Yarrow	0.8
<i>Agrimonia eupatoria</i>	Agrimony	0.6
<i>Betonica officinalis</i>	Betony	1.0
<i>Centaurea nigra</i>	Common Knapweed	2.8
<i>Galium verum</i>	Lady's Bedstraw	0.6
<i>Geranium pratense</i>	Meadow Crane's-bill	0.4
<i>Lathyrus pratensis</i>	Meadow Vetchling	1.0
<i>Leontodon hispidus</i>	Rough Hawkbit	0.3
<i>Leucanthemum vulgare</i>	Oxeye Daisy	1.8
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	0.3
<i>Malva moschata</i>	Musk Mallow	1.4
<i>Medicago lupulina</i>	Black Medick	0.7
<i>Plantago lanceolata</i>	Ribwort Plantain	2.8
<i>Primula veris</i>	Cowslip	0.8
<i>Prunella vulgaris</i>	Selfheal	1.1
<i>Ranunculus acris</i>	Meadow Buttercup	1.1
<i>Rhinanthus minor</i>	Yellow Rattle	1.0
<i>Sanguisorba officinalis</i>	Great Burnet	0.2
<i>Silene silaus</i>	Pepper-saxifrage	1.0
<i>Silene flos-cuculi</i>	Ragged Robin	0.4
<i>Vicia cracca</i>	Tufted Vetch	0.8
20		
GRASSES		
<i>Agrostis capillaris</i>	Common Bent	8
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass (w)	2.4
<i>Briza media</i>	Quaking Grass (w)	4
<i>Cynosurus cristatus</i>	Crested Dogstail	40
<i>Festuca rubra</i>	Red Fescue	20
<i>Alopecurus pratensis</i>	Meadow Foxtail (w)	2.8
<i>Schedonorus pratensis</i>	Meadow Fescue	2.8
90		

PLANTING NOTES

All planting to be in accordance with series 3000 Specification for Highways Works.

Preparation and cultivation:
All groundwork shall comply with BS 3882 and BS 8601 for topsoil. Site won topsoil and subsoil material is to be screened, free from contamination, building materials, stones and roots over 50mm. Clean imported topsoil is to be in compliance with BS 3882.

Low nutrient topsoil to be used for species rich grass areas.

Subsoil to be loosed to min 500mm depth by tipping at 600mm centres using appropriate tillage equipment. After spreading topsoil, rip at 300mm centres to depth of 300mm for grass areas and 600mm for planting areas.

Further cultivation: any large, compacted lumps of soil shall be broken down by further appropriate cultivation (in accordance with BS 4428) to produce a fine tilth suitable for planting (<30mm), turfing and seeding (<10mm).

New trees and shrubs shall be planted into established grass areas (either existing or newly seeded as part of the works).

All site preparation, planting and maintenance works shall be carried out in accordance with British Standard BS 4428:1989 code of practice for general landscape operations (excluding hard surfaces).

All trees and plants supplied shall comply with the requirements of all parts of British Standard BS 3936 specification for nursery stock, BS 8545:2014 trees: from nursery to independence in the landscape. Recommendations & The National Plant Specification.

All new tree planting shall be positioned in accordance with the requirements of table A.1 of British standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction -Recommendations.

Tree planting pits are to be suitable for each root ball, excavated to a minimum depth/width 1000mm with slow release fertiliser granules fully incorporated within backfill material. For extra heavy standards and heavy standards the staking shall be undertaken after the tree has been positioned. Two stakes, each of 3 m length shall be driven down the side of the rootball and into the pit to a depth of 500 mm below the bottom of the pit. the stakes shall be angled outwards to between 5° and 10° at the top and pulled in moderately by tensioning all the supporting bands equally. The stakes shall be equally spaced and shall not pass through the rootball.

Timing and condition of stock:
The condition of all proposed planting stock is to be in accordance with BS 3936:1992 and BS 5236. all stock shall be sourced from a HTA (Horticultural Trade Association) approved nursery. Rootballed trees are to be planted between mid-October and early April; outside of this period, all rootballed trees are to be replaced with containerised stock. All other planting to be undertaken between September and March, except when the ground is frozen and/or snow bound,waterlogged, and during prolonged dry and windy conditions.Upon completion of planting all plants are to be fully watered in to field capacity. All dead or dying foliage and branches to be pruned.

Grass seeding:
Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture in the soil. Moisture may be supplied artificially by watering but must be thorough enough to penetrate at least 100mm, and continued after sowing if dry weather follows. Seed should be surface sown onto a freshly prepared seed bed and can be applied by machine or broadcast by hand. To get an even distribution, divide the seed into two or more parts and sow in overlapping sections.

Landscape Maintenance:
Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: reinstate to original condition.

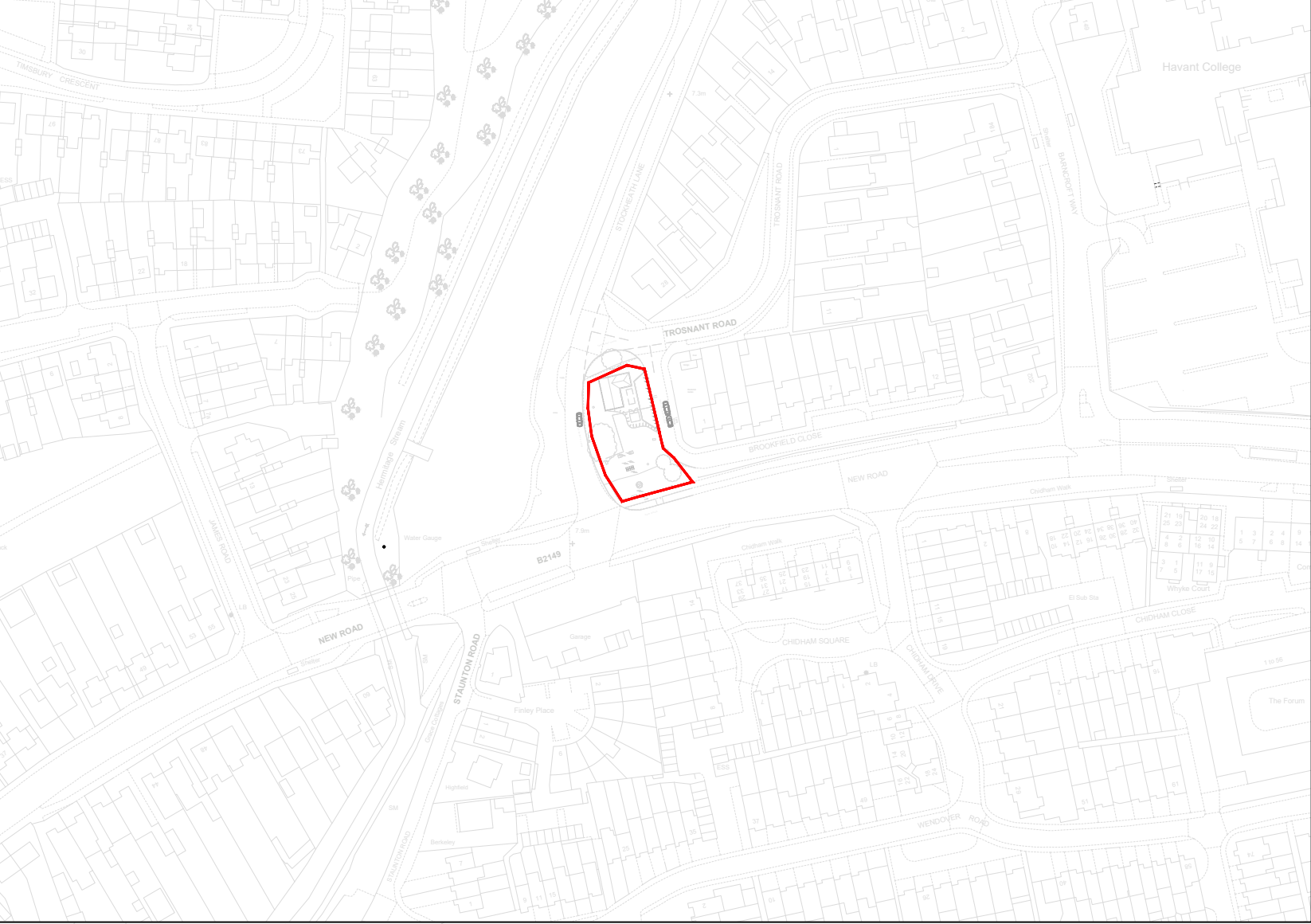
Watering: as necessary for the continued thriving of all planting, wet to field capacity.

Species rich grassland: cut once a year in August or September once flowers have gone to seed. cut to height of 100mm and remove all arisings.

Failures to any planting and seeding to be made good and replaced in the next suitable planting /seeding season. All planting and trees to be refirmed after strong winds or frost heave. Check all tree stakes and adjusted as needed.

Planting areas and around base of trees to be kept weed free.

Location Plan 1:2000



DO NOT SCALE

KEY

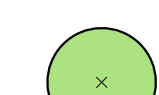


APPLICATION BOUNDARY

TREES



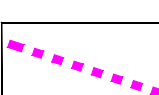
EXISTING TREES TO BE RETAINED



PROPOSED TREES
To be planted as standards, 10-12cm girth
Bpn = Betula pendula (Silver Birch)



MATURE CANOPY SPREAD
Approximate average size



TREE ROOT BARRIER
gRootbarrier 325, 1m depth or similar, to be installed in locations shown on plan to protect services and pavements

GRASSLAND

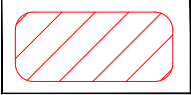


EXISTING GRASS TO BE RETAINED



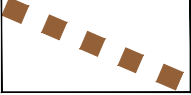
PROPOSED SPECIES-RICH GRASS
G3C OTHER NEUTRAL GRASSLAND, TO BE SEED
WITH A SPECIES-RICH MEADOW MIXTURE

PLANTING

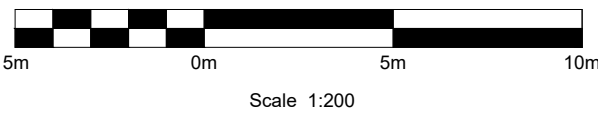


EXISTING HEDGEROWS TO BE REMOVED

PLANTING (PROPOSED)



NATIVE HEDGE
H2A5 SPECIES-RICH NATIVE HEDGEROW.
PLANTING OF TRANSPLANTS TO GIVE >5
SPECIES PER 30M SECTION.



P05	18/10/24	PROPOSED TREE LOCATIONS AMENDED		DB	DB	JL	
P04	14/10/24	MINOR UPDATES		DB	DB	JL	
P03	09/10/24	TREES AMENDED, ROOT BARRIER AND CANOPY SPREAD ADDED		DB	DB	JL	
P02	26/09/24	MEADOW MIXTURE CHANGES, FOR REVIEW AND COMMENTS		DS	DB	JL	
P01	20/09/24	FOR REVIEW AND COMMENTS		DS	DB	JL	
Rev.	Date	Description			By	Chk'd	App'd
Drawing Status					Suitability		
FOR INFORMATION					S2		
 AtkinsRéalis Two Chamberlain Square Birmingham West Midlands B3 3AX Tel: +44 (0)121 483 5757 Fax: www.atkinsrealis.com © AtkinsRéalis (2024)							
Client							
							
Project Title							
RACTON PUMPING STATION							
Drawing Title							
LANDSCAPE PROPOSALS PLAN							
Scale	Designed	Drawn	Checked	Authorised			
1:200	DB	DS	DB	JL			
Original Size	Date	Date	Date	Date			
A1	13/09/24	13/09/24	18/09/24	20/09/24			
Drawing Number				Revision			
5227179-ATK-XX-XX-DR-L-1000				P05			

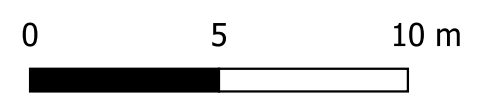
Appendix B. Habitat Baseline Plan

Figure 5-4 - Habitat Baseline Plan



Legend

-  Site Redline Boundary
-  Grassland - other neutral grassland
-  Individual urban trees
-  Hedgerow - species-rich native hedgerow (priority habitat)



Base Mapping:© Google 2024

Original scale: 1:200.00	Figure No. 5-4
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AtkinsRéalis ©, Woodcote Grove, Ashley Road, Epsom, England, KT18 5BW

Project: Racton Pumping Station

Client: Trant Engineering Ltd

Title: Racton Pumping Station Rough Baseline Habitat Map

Drawn by: LH Date: 18/09/2024	Checked by: GH Date: 01/10/2024	Reviewed by: VH Date: 02/10/2024
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Appendix C. Condition Assessment Sheets

Grassland - Other neutral grassland			
On-site or off-site, site name and location	Racton Pumping Station	Survey date and Surveyor name	28/08/2024 LH / SB
Limitations (if applicable)	Short sward with no flowering grass species, making it difficult at times to ID grass species.		
Grid reference	SU 71147 06846		
Habitat Description			
Frequently mown (UKHab secondary code 108) g3c other neutral grassland consisting of red clover, ribwort plantain, lords and ladies, white clover, salad bernett, cow parsley, yarrow, doves foot cranesbill, mouse-ear chickweed, creeping cinquefoil, creeping buttercup, daisy, spotted medick, ragwort, dock sp., Yorkshire fog, daffodil, cleavers, red deadnettle, oxeye daisy, birdfoot trefoil, cocksfoot, rough hawkbit, cats ear, spotted medick, common mallow, bent sp., perennial rye, self heal and field bindweed.			
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). ¹ Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.	Yes	Limited amount of white clover, creeping buttercup and dock sp.
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No	Frequently mown grassland with a uniform and short (<4 cm) sward.
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens ² .	No	No bare ground present.
D	Cover of bracken <i>Pteridium aquilinum</i> is less than 20% and cover of scrub (including bramble <i>Rubus fruticosus</i> agg.) is less than 5%.	Yes	No bracken and no scrub present within the grassland.
E	Combined cover of species indicative of suboptimal condition ³ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species ⁴ (as listed on Schedule 9 of WCA ⁵) are present, this criterion is automatically failed.	Yes	Suboptimal species less than 5% of total area.
F	There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count).	No	9 species on average per m ² .

	Note - this criterion is essential for achieving Good condition for non-acid grassland types only.		
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		No	
Number of criteria passed		3	
Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓	
Acid grassland types (Result out of 5 criteria)			
Passes 5 criteria	Good (3)	N/A	
Passes 3 or 4 criteria	Moderate (2)	N/A	
Passes 2 or fewer criteria	Poor (1)	N/A	
Non-acid grassland types (Result out of 6 criteria)			
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)	No	
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	No	
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	Yes - Passes 3 criteria excluding criterion F.	
Suggested enhancement interventions to improve condition score			
Increase vascular plant species. Management to allow varied sward height.			

Species-rich native hedgerow						
Habitat Description						
Species-rich native hedgerow (priority habitat) formed of hawthorn (dominant species), elder, ash saplings, pedunculate oak sapling, privet, bramble, ivy. Lords and ladies in the ground flora along with hedge bind weed, ground ivy, common nettle, white dead nettle, hedge woundwort, herb Robert, wood avens, cleavers, cow parsley. Looks like it is likely a planted hedge formed of hawthorn with other species which have colonised. Compost heap located at base of hedge towards the northern end.						
On-site or off-site, site name and location		Racton Pumping Station		Survey date and Surveyor name	28/08/2024 LH / SB	
Limitations (if applicable)		N/A				
Grid reference		SU 71157 06838				
Hedgerow favourable condition attributes						
Attributes and functional groupings (A, B, C, D and E)		Criteria - the minimum requirements for 'favourable condition'	Criteria description		Criterion passed (Yes or No)	Notes (such as justification)
Core groups - applicable to all hedgerow types						
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the 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).	Yes	Average hedge height 5 m +	

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 (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m 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 (if undertaken according to good practice).	Yes	Average width 1.5-2 m
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	No	No gap between canopy and ground flora
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 (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Yes	Continuous canopy
C1.	Undisturbed ground and perennial vegetation	>1 m 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	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily	No	Both sides of the hedgerow are bound by regularly mown g3c - other neutral grassland.

		hedgerow (at least).	trodden footpaths, poached ground etc. can limit available habitat niches.		
C2.	Nutrient-enriched 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 <i>Urtica</i> spp., cleavers <i>Galium aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	No	N/A. Fails C1 so automatically fails C2. Some dock, nettle and cleavers but less than 20%
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website ⁴ , as well as the BSBI website ⁵ where the 'Online Atlas of the British and Irish Flora' ⁶ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website ⁷ .	Yes	No invasive species present.
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 (for example, excessive hedgerow cutting).	Yes	Some rubble and decking dumped at base of hedge but less than 10% of hedge affected.
Condition categories for hedgerows without trees					
Category	Category Requirements	Metric Score			
Good	No more than 2 failures in total; AND No more than 1 failure in any functional group.	3			

Moderate	No more than 4 failures in total; AND <u>Does not fail both attributes</u> in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2			
Poor	Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1			
Score achieved:		2			
Suggested enhancement interventions to improve condition score					
Manage ground flora better to create an undisturbed strip of vegetation 1 m either side of hedgerow. Any replanting to include native species rich mix.					

Condition Sheet: INDIVIDUAL TREES Habitat Type			
Habitat Types			
Individual trees – Rural trees			
Habitat Description			
Group of alder trees of which there are nine stems which appear to be from three trees. These trees are covered in a large amount of ivy foliage that could potentially be obscuring PRF that could be used be roosting bats. Compost heap at base of trees (grass cuttings).			
On-site or off-site, site name and location	Racton Pumping Station	Survey date and Surveyor name	28/08/2024 LH / SB
Grid reference	SU 71144 06831	Habitat parcel reference	
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	The tree is a native species (or at least 70% within the block are native species).	Yes	Group of alder trees
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes	Urban group of trees. Auto pass. All canopy connected
C	The tree is mature (or more than 50% within the block are mature) ¹ .	Yes	Mature alders present
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes	No active management. Compost heap at base (grass cuttings)
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Yes	Large amount ivy present
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes.	60% canopy over sailing.
Number of criteria passed		6	

Condition Assessment Result (out of 6 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 5 or 6 criteria	Good (3)	Yes.	
Passes 3 or 4 criteria	Moderate (2)		
Passes 2 or fewer criteria	Poor (1)		
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.			
Suggested enhancement interventions to improve condition score²			
Leave alone. Plant further urban trees of native species.			

Appendix D. Habitat Post-Development Plan

Figure 5-5 - Habitat Post-Development Plan





Legend

-  Site Redline Boundary
-  Urban - developed land. sealed surface (created)
-  Grassland - other neutral grassland (enhanced)
-  Grassland - other neutral grassland (retained)
-  Hedgerow - native hedgerow (created)
-  Hedgerow - species-rich native hedgerow (priority habitat) (retained)
-  Small individual urban trees (created)
-  Medium individual urban trees (retained)

0510 m

Base Mapping:© Google 2024

Original scale: 1:200.00	Figure No. 5-5
AtkinsRéalis ©, Woodcote Grove, Ashley Road, Epsom, England, KT18 5BW	
Project: Racton Pumping Station	
Client: Trant Engineering Ltd	
Title: Racton Pumping Station Habitat Post-Development Plan	
Drawn by: LH Date: 21/10/2024	Reviewed by: VH Date: 21/10/2024

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