

A large teal graphic on the left side of the page, consisting of a triangle at the top and a trapezoid below it, forming a shape that resembles a stylized 'M' or a mountain peak.

Staplefield Wetland Construction

Ecological Impact Assessment

February 2024

This page left intentionally blank for pagination.

Mott MacDonald
One Valpy
20 Valpy Street
Reading RG1 1AR
United Kingdom

T +44 (0)118 902 7800
mottmac.com

Southern Water
Lewes Road
Falmer
Brighton
BN1 9PY

Staplefield Wetland Construction

Ecological Impact Assessment

February 2024

Issue and Revision Record

| Revision | Date | Originator | Checker | Approver | Description |
|----------|------------|-----------------------|--------------------------|-----------------|-------------------------------|
| A | 30/01/2024 | Z. Durran A. Perks | B. Ellis L. Henderson | J. Knightbridge | Draft issue for client review |
| B | 06/02/2024 | Z. Durran | L. Henderson | J. Knightbridge | Final issue |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Document reference: 100416906-011 | 24 | B | 639529-MM-N-RPT-0024

Information class: Standard

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

Contents

| | |
|---|-----------|
| Executive summary | 1 |
| 1 Introduction | 2 |
| 1.1 Background | 2 |
| 1.2 Site Location | 2 |
| 1.3 Scheme Description | 2 |
| 1.3.1 Overview | 2 |
| 1.3.2 Construction | 3 |
| 1.3.3 Programme | 3 |
| 1.4 Scope of the Assessment | 4 |
| 1.5 Planning Policy and Legislation | 4 |
| 1.6 Quality Assurance | 5 |
| 2 Methodology | 6 |
| 2.1 Zone of Influence | 6 |
| 2.2 Desk Study | 6 |
| 2.3 Field Survey | 6 |
| 2.3.1 Habitats and Invasive Plants | 6 |
| 2.3.2 Protected and Notable Species | 7 |
| 2.4 Limitations and Constraints | 8 |
| 2.5 Assessment Methodology | 8 |
| 2.5.1 Determining Importance of Ecological Features | 8 |
| 2.5.2 Impact Assessment Criteria | 9 |
| 2.5.3 Likely Impacts | 10 |
| 3 Ecological Baseline and Evaluation | 11 |
| 3.1 Statutory Designated Sites | 11 |
| 3.2 Non-statutory Designated Sites | 11 |
| 3.2.1 Local Wildlife Sites (LWS) | 11 |
| 3.2.2 Ancient Semi-Natural Woodland and Veteran Trees | 12 |
| 3.3 Habitats | 12 |
| 3.3.1 Habitats of Principal Importance (HPI) | 13 |
| 3.4 Species | 15 |
| 3.5 Summary of Ecological Feature Importance | 19 |
| 3.6 Identification of Important Ecological Features | 20 |
| 4 Impact Assessment, Mitigation and Significance of Residual Effects | 21 |
| 4.1 Overview | 21 |
| 4.2 Avoidance Measures | 21 |

| | | |
|------------|---|-----------|
| 4.3 | Embedded Mitigation Measures | 21 |
| 4.3.1 | Construction Environmental Management Plan (CEMP) | 21 |
| 4.3.2 | Landscaping Proposals | 22 |
| 4.4 | Biodiversity Net Gain | 22 |
| 4.5 | Assessment of Construction Impacts, Mitigation and Residual Effects | 23 |
| 4.6 | Operational Impacts, Mitigation and Residual Effects | 29 |
| 4.6.1 | Noise and Vibration | 29 |
| 4.6.2 | Air Pollution | 29 |
| 4.6.3 | Waste | 29 |
| 4.6.4 | Traffic Movements | 29 |
| 5 | Ecological Enhancements | 30 |
| 5.1 | Ecological Enhancements | 30 |
| 6 | Conclusions | 31 |
| | References | 32 |
| | Appendices | 35 |
| A. | Staplefield Landscape Plan | 36 |
| B. | Relevant Legislation and Policy | 38 |
| B.1 | Legislation | 38 |
| B.2 | Policy | 39 |
| C. | Phase I Habitat to UKHab Translation | 45 |
| D. | UK Habitat Map | 46 |
| | Tables | |
| Table 2.1: | Zone of Influence for this Assessment | 6 |
| Table 2.2: | Summary of Further Survey Work | 7 |
| Table 2.3: | Geographic Frame of Reference | 9 |
| Table 3.1: | Non-statutory Designated Sites | 11 |
| Table 3.2: | Description of Existing Habitats on Site | 12 |
| Table 3.3: | HPI within the Zone of Influence of the Site | 13 |
| Table 3.4: | Summary of Further Survey Results | 15 |
| Table 3.5: | Valuation of Protected and Notable Species | 15 |
| Table 3.6: | Summary of Ecological Feature Importance | 19 |

Table 4.1: Assessment of Impacts of the Proposed Works and Proposed Mitigation

23

Executive summary

Mott MacDonald Limited has been appointed by Southern Water to undertake an Ecological Impact Assessment (EclA) for Staplefield Wastewater Treatment Works (WTW) Integrated Constructed Wetland (ICW). Staplefield WTW is situated adjacent to the River Ouse, approximately 500m to the south of the village of Staplefield in West Sussex, RH17 6ES. The proposed project boundary will hereafter be referred to as 'the Site'. Staplefield Landscape Plan shows the red-line boundary (RLB) of the Site.

A Preliminary Ecological Appraisal (PEA) was undertaken in October 2021 and a subsequent Preliminary Ecological Appraisal Report (PEAR) produced in January 2022. Further surveys were conducted including a Preliminary Roost Assessment (PRA) and emergence surveys for bats, great crested newt (GCN) Habitat Suitability Assessments (HSI), eDNA survey, torching and bottle trap GCN surveys, hazel dormouse surveys and otter surveys between April 2022 and September 2022.

The Site supports two Habitats of Principal Importance (HPI), hedgerows and rivers (the River Ouse). The River Ouse runs along the Site and forms its southern boundary. This section of the river has not been identified within the Priority River Habitat Map (Natural England, 2023) as a river that exhibits a high degree of naturalness. Also, the River Ouse is not defined as 'high status' under the Water Framework Directive (WFD) and does not meet the criteria of a 'priority river' (JNCC, 2011). HPI wet woodland and hedgerow are present within 30m of the Site. The ecology survey results have fed into the scheme design to ensure that the placement of the works retains the habitat of highest ecological value in the Site.

Protected species surveys confirmed presence of commuting and foraging bats, GCN and otter, also the Site has suitable habitat to support birds, badger, hazel dormouse, European hedgehog, widespread reptile species, common toad and white-clawed crayfish so these must be considered. In addition, invasive non-native species (INNS) have been identified within proximity of the Site and therefore must be considered.

The impact of the proposed development on designated sites and habitats as well as species is assessed within this document. Appropriate mitigation and enhancements, in line with local and national policy, include:

- **Construction Environmental Management Plan (CEMP):** All works will be undertaken under a CEMP to include ecological safeguards for protected and notable habitats and species. Such measures will include ecological supervision, appropriate timing of works, phased and directional vegetation clearance, pollution prevention measures, habitat compensation and control of lighting.
- **Habitat Creation and Habitat Management and Monitoring Plan (HMMP):** All habitat creation and enhancement will follow a HMMP and will be overseen by a suitably experienced ecologist. This plan will detail how the land will be managed over the subsequent 30 years. This includes the wetland, grassland and scrub creation and tree planting which is proposed as part of Biodiversity Net Gain (BNG) for the Site. A BNG Statutory Metric Calculation and Report will be produced for the project separately to this report, explaining how the gain will be achieved.

With the mitigation in place, there are expected to be no residual adverse effects on any designated sites, habitats or species.

Ecological enhancements as part of the design of the works are also described in this report.

1 Introduction

1.1 Background

As part of the Water Industry National Environment Programme 3 (WINEP 3), Southern Water identified an opportunity to explore alternative Asset Management Plan 7 (AMP7) wastewater management options to meet proposed phosphorus permits. Southern Water is required to ensure that Staplefield Wastewater Treatment Works (WTW) meets the new permit requirement of 0.5mg/l total phosphorus (TP) by 22 December 2024.

In line with Environment Agency policy, Southern Water is committed to increasing sustainability by reducing the use of hard infrastructure solutions for improving wastewater treatment at their WTWs. As such, an Integrated Constructed Wetland (ICW) is proposed to be constructed to reduce TP concentrations to a level that would comply with the revised permit.

Mott MacDonald has been commissioned by Southern Water to provide environmental and planning services for the delivery of a treatment wetland at Staplefield WTW. The design of the ICW has been completed by VESI Environmental. Where references to the design area are made, this is based on understanding from consultation with and documents provided by the design team.

This report presents the Ecological Impact Assessment (EclA) to support the planning application for the development of the land adjacent to Staplefield WTW under the Town and County Planning Act 1990.

Biodiversity Net Gain (BNG) will not be mandatory at point of submission and is therefore to be completed alongside the planning application. Southern Water will continue to work with the council to ensure BNG is appropriately addressed for the development. A BNG Report is to be produced for the project separately to this report, explaining how the gain will be achieved.

1.2 Site Location

Staplefield WTW is situated adjacent to the River Ouse, approximately 500m of the south of the village of Staplefield in West Sussex, RH17 6ES. The grid reference of the centre of the current WTW is TQ 27963 27395. The proposed project boundary will hereafter be referred to as 'the Site'. Appendix A shows the red-line boundary (RLB) of the Site.

The existing land use of the Site and surrounding area is arable farmland. The WTW treats wastewater from Staplefield and the surrounding area before discharging the treated effluent to the River Ouse to the south of the existing WTW. The main elements of the ICW will be located within the field adjacent to the east of the WTW, currently characterised by farmland under private ownership. Other ancillary elements will be located within the current operational WTW, and within the field adjacent to the east of the WTW. Some additional elements, which include the flood mitigation area and an area for a construction compound, will be located to the south of the ICW and in the field to the northwest of the WTW respectively.

1.3 Scheme Description

1.3.1 Overview

The design of Staplefield ICW has been completed by VESI Environmental (see **Appendix A** for the landscape plan). The ICW has been designed to deliver a treatment system to treat the incoming phosphorus load to meet the 0.5mg/l TP permit as well as provide wider environmental benefits in terms of biodiversity, carbon sequestration and landscape design.

The design philosophy of the ICW promotes the treatment of phosphorus in a sustainable and natural way. The proposed system includes four wetland cells comprising of wetland vegetation and a water depth of up to 1.0m. Flows from Staplefield WTW (4l/s) will be pumped from the WTW to Wetland Cell 1 and then subsequently flow via gravity through the series of wetlands cells before connecting back to the existing final effluent chamber before discharge via the existing outfall to the River Ouse.

Site investigations have shown that the underlying ground conditions are favourable for the creation of a natural clay liner (site-won clays) rather than an artificial liner. The permeability of the clays will provide protection to avoid leakage into groundwater and provide attenuation of water within the wetland.

The tallest element will be the embankments between the wetland cells, approximately 2m above existing ground level. These embankments will be formed of the spoil generated from the excavation of the wetland cells. The embankments and wetland will be planted with mixed native species to increase biodiversity as well as create suitable conditions for vital physical and biological processes to improve water quality to achieve the 0.5mg/l TP permit (VESI Environmental, 2023).

There is also a flood mitigation area in the design to compensate for the loss of flood storage within the existing field. This feature will be connected to the River Ouse via a series of pipes which will allow the water level within the flood mitigation area to rise and fall with the water level of the river.

1.3.2 Construction

The construction of the proposed development is expected to utilise standard construction techniques. The wetland cells will be excavated using 8-tonne tracked excavators under the supervision of a banksman (GTb, 2023a). 6-tonne dumpers will be used for moving material between the excavation and the designated stockpile area (GTb, 2023a, 2023b). The pumping station and associated pipework will be installed via cut and cover excavations.

The total cell area of the wetlands is 12,862m² (equivalent to 1.29 hectares). The area of each wetland cell is as follows:

- Cell 1 = 487m²
- Cell 2 = 5,399m²
- Cell 3 = 4,387m²
- Cell 4 = 2,589m²

A cut and fill balance has been calculated for the wetland area. The deepest excavation required to facilitate the construction of the proposed development will be up to 2m below existing ground level for the wetland cells.

Some construction works will be undertaken within 8m of the River Ouse, a Main River, in particular the pipework connecting the flood mitigation area to the River Ouse. Environmental permitting will be agreed with the Environment Agency in relation to flood risk activities.

1.3.3 Programme

Construction of the ICW and ancillary works to connect the ICW to the existing WTW will commence in spring 2024 and will be carried out over approximately six months. The ICW is expected to be operational by winter 2024 to provide the necessary treatment to meet the revised permit by 22 December 2024.

1.4 Scope of the Assessment

The scope of this assessment is to identify, quantify and evaluate potential adverse and beneficial effects of the proposed development on ecological features, including habitats, species, and designated sites and to outline the mitigation and enhancement requirements.

This EcIA has been based on the Chartered Institute of Ecology and Environment Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).

The aims of this assessment are to:

- Draw together the ecological baseline information for the Site and identify potentially important ecological features (including designated sites, habitats and protected or notable species);
- Identify and assess any potential impacts on important ecological features from the construction and operational activities related to the proposed works;
- Outline the avoidance measures that have been incorporated into the design of the works;
- Identify any mitigation or compensation measures that are considered necessary to offset potential development impacts (including any licensing requirements for protected species);
- Identify and describe any monitoring requirement to ensure compliance with and effectiveness of mitigation and compensation measures;
- Assess the final design of the works against the relevant legislative and planning policy framework; and
- Identify any opportunities for ecological enhancements, in line with national and local planning policy requirements.

1.5 Planning Policy and Legislation

The construction and operational activities for the project must comply with international, European, and UK nature conservation legislation and with national and local biodiversity policies. The main pieces of legislation in the UK are the Wildlife and Countryside Act (1981) (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended), which legally protect a number of species and habitats. These pieces of legislation provide a range of protection for many species, and create protected sites (including Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)).

Under the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), all public bodies are required to have regard to biodiversity conservation when carrying out their function. Under this Act a list of habitats and species of principal importance (HPIs and SPIs) for the conservation of biodiversity in England are published under Section 41 (S41).

The Environment Act 2021 strengthens this biodiversity duty and will ensure that developments deliver at least a 10% increase in biodiversity and contains a number of other provisions such as support for a Nature Recovery Network, strengthened protection for trees and the requirement for conservation covenants. The Act comes into force in January 2024 and the mandatory requirement for BNG will come into place on 12 February 2024 for major developments.

Invasive non-native species (INNS) are regulated via a combination of the Invasive Alien Species (Permitting and Enforcement) Order 2019 (IAS) and Section 14/Schedule 9 of the Wildlife and Countryside Act (1981) (as amended).

The biodiversity policies which are most relevant to the proposed works are the National Planning Policy Framework (NPPF, updated 2021) as well as Policy DP38 'Biodiversity' within the adopted Mid Sussex District Plan (2014-2031).

In addition, the emerging District Plan 2021-2039 is expected to replace the current adopted District Plan in January 2024. Relevant policies include:

- Policy DPN1: Biodiversity, Geodiversity and Nature Recovery, which provides an update to Policy DP38 above.
- Policy DPN2: Biodiversity Net Gain, which is a new policy within the updated District Plan.

Detailed information on the relevant legislation and policy are provided in **Appendix B**.

1.6 Quality Assurance

All ecologists involved in the production of this report are members of the CIEEM and are bound by its code of conduct (CIEEM, 2018). Assessments have been undertaken with reference to the recommendations given in *BS 42020:2013 Biodiversity: Code of practice for planning and development* (British Standards Institute, 2013).

In line with CIEEM (2018) guidance on the lifespan of ecological surveys, given the nature of the habitats present on site, the survey results are considered valid for up to 18 months. Following this, the survey data should be reviewed and, if appropriate, updated to ensure any assessment and mitigation approach remains valid.

2 Methodology

2.1 Zone of Influence

The current guidance on ecological impact assessments (CIEEM, 2018) recommends that all ecological features that occur within a 'Zone of Influence' (Zol) for a proposed development are investigated.

The Zol includes:

- Areas directly within the land take for the proposed development and access;
- Areas which will be temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The Zol is variable depending on the nature of the construction activities and the ecological features affected. For this assessment the Zol used have been defined in Table 2.1.

Table 2.1: Zone of Influence for this Assessment

| Ecological Feature | Zone of Influence |
|--|--|
| Designated sites | Within 2.0km of the Site |
| National Site Network (NSN) designated sites | Within 10.0km of the Site |
| Protected species records | Within 2.0km of the Site |
| Protected species evidence | Within the survey area boundary* |
| Habitats (including HPI) | Within and up to 30m outside of the survey area boundary |

Source: Mott MacDonald, 2023.

* Unless surveys require consideration of features beyond the Site boundary in accordance with guidance, such as GCN, in which case this is stated in the relevant methods below.

2.2 Desk Study

A desk study was undertaken, as per Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017), to determine the presence of any designated nature conservation sites and protected and notable species within the Zol of the Site. To ensure the validity of the data, only records collected in the last 10 years were considered.

Data for the desk study was obtained from the Sussex Biodiversity Record Centre (SxBRC) on 25 October 2021. Additional information to inform the desk study was also obtained from the Multi Agency Geographical Information for the Countryside (MAGIC, 2023).

The full results of the desk study are presented in the Preliminary Ecological Appraisal Report (PEAR) (Mott MacDonald, 2022a).

2.3 Field Survey

2.3.1 Habitats and Invasive Plants

An initial field survey was undertaken by experienced ecologists on 28 October 2021 in accordance with the principles of the BS 42020:2013 (British Standards Institution, 2013) and the Guidelines for Preliminary Ecological Appraisal (PEA) (CIEEM, 2017).

All habitats within the survey area were identified and mapped in compliance with the 'Handbook for Phase 1 Habitat Survey: a technique for environmental audit' (JNCC, 2010). The abundance of species within each habitat is described in line with the DAFOR scale (dominant, abundant, frequent, occasional and rare) (BSBI, 2011). Invasive species listed on Schedule 9 of the 1981 Act or Schedule 2 of the 2019 Order and any protected or uncommon species were noted.

Since the time of the survey, Phase 1 Habitat Survey has ceased to be the principal technique for habitat surveys and UK Habitat (UKHab) Survey (UKHab Working Group, 2018) has now been widely adopted and is used to inform the BNG metric. Therefore, UKHab translation for the habitats are also listed in Appendix C.

2.3.2 Protected and Notable Species

As part of the PEA, an initial assessment of the possible presence of SPI or protected species was completed within the Site. This was based on the known distribution of species, habitat suitability and/or direct evidence such as field signs or observations. The methodologies and assessment criteria used were based on current published guidance where available. Where applicable, additional survey work was recommended.

A summary of the further survey work undertaken in relevance to the works considered in this report, and references to relevant methodologies is included below within Table 2.2.

Table 2.2: Summary of Further Survey Work

| Species | Survey | Survey Dates | Survey Guidance |
|--|--|--|---|
| GCN <i>Triturus cristatus</i> | Habitat Suitability Index (HSI) assessments and eDNA surveys of all waterbodies within 500m of the Site. Subsequent population size class assessment of pond returning positive eDNA result. | 21 April 2022 (HSI and eDNA surveys). 21 April – 15 June 2022 (population size class assessment). | Oldham <i>et al.</i> , (2000) Evaluating Habitat Suitability for great crested newt. Langton <i>et al.</i> , (2001) Great Crested Newt Conservation Handbook |
| Hazel dormouse <i>Muscardinus avellanarius</i> | Nut search and nest tube survey of suitable habitat within and connected to the Site. The previous larger boundary surveyed was named 'Area of Interest' and is shown in the 'Hazel Dormouse Report' [639529-MM-N-RPT-0011] (Mott MacDonald 2022f). | April – September 2022. | Bright <i>et al.</i> , (2006) Dormouse Conservation Handbook. |
| Otter <i>Lutra lutra</i> | Field survey of River Ouse, including marginal vegetation and woodland adjacent to the south of the proposed works area and 200m upstream and downstream, where access allowed. Camera trapping of potential otter holt. | 23 May & 30 August 2022 (field surveys). 2-11 August 2022 (camera trapping). | Chanin, (2003) Monitoring the Otter <i>Lutra lutra</i> . |
| Bats | Ground-level Preliminary Roost Assessment (PRA) of 128 trees on and within 15m of the Site. One dusk emergence bat survey on buildings (B1 and B2) and two dusk emergence bat surveys on the moderate suitability trees (T3, T4, T7, T12, T14, T15 and T16). | 25 April 2022 (PRA). August and September 2022 (emergence surveys). | Collins, (2016) Bat Surveys for Professionals: Good Practice Guidelines. |

Source: Mott MacDonald, 2023.

The detailed survey methodology for the surveys listed in Table 2.2 are included within the respective associated further survey reports:

- 'Great Crested Newts eDNA and HSI Report' [639529-MM-N-RPT-0009] (Mott MacDonald 2022d).
- 'Hazel Dormouse Report' [639529-MM-N-RPT-0011] (Mott MacDonald 2022f).
- 'Otter Survey Technical Note' [639529-MM-N-RPT-0010] (Mott MacDonald 2022e).
- 'Bat Preliminary Roost Assessment and Emergence Survey Report' [639529-MM-N-RPT-0006] (Mott MacDonald 2022c).

2.4 Limitations and Constraints

Limitations of the survey work are detailed within the PEAR and individual species reports as listed in Section 2.3.2. Where survey work was constrained by factors such as access and weather, this has been addressed within survey windows and/or has been taken into consideration during the interpretation of the results. More general constraints of relevance to the assessment are as follows:

- Biological records obtained from third parties and presented in the desk study do not represent a full and complete species list for the area. The records are mostly provided by individuals on an ad-hoc basis, often meaning there are areas of deficiency in the data. If species records are not present it may be as a result of the area being under surveyed and as such no records have been returned, lack of species records should therefore not be disregarded.
- Ecological surveys are limited to factors which affect the presence of plants and animals, such as time of year, migration patterns and behaviour. With a single survey visit it is possible that certain species may have been overlooked or under-recorded during the assessment as optimal survey periods vary from species to species.
- The list of INNS that it is unlawful to spread or cause to grow is extensive. This survey focussed on those INNS that are more commonly encountered, such as Japanese knotweed *Reynoutria japonica*, Himalayan balsam *Impatiens glandulifera*, rhododendron *Rhododendron ponticum*, Virginia creeper *Parthenocissus quinquefolia* and wall cotoneaster *Cotoneaster horizontalis*. There is therefore a low risk that some less common INNS may have been missed during the field survey.

The above pose only minor constraints to the survey work, its results and this report. The overall survey work is considered valid and provides appropriate effort to consider the impacts on the habitats and species present.

2.5 Assessment Methodology

An assessment of the anticipated impacts for each ecological feature that occurs within the defined ZOI has been undertaken with reference to the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2018). These guidelines set out a process of determining the importance of an ecological feature and characterising the predicted impacts on that feature from the proposed development. The criteria used to determine the importance of the ecological features present and the significance of the anticipated impacts are detailed within the following sections.

Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EclA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general (CIEEM, 2018). Effects can be considered significant at a wide range of geographical scales, from international to local.

2.5.1 Determining Importance of Ecological Features

The conservation importance of each ecological feature that occurs within the ZOI was assessed with consideration of the following factors:

- Designation of the Site;
- Rarity of the species or habitats;
- Presence of Red List or endemic species;
- Presence of diverse assemblages of plants, habitats or animals;
- Plant communities typical of natural/semi-natural habitats; and
- Connectivity and presence of large populations of animals which are uncommon or threatened in a wider context.

In line with the CIEEM Guidance on EclA, the importance of each ecological feature was considered within a defined geographical context (CIEEM, 2018). The geographic frame of reference used within this report is defined within Table 2.3.

Table 2.3: Geographic Frame of Reference

| Scale | Description and examples |
|----------------------|---|
| International | A feature (e.g., habitat or population) which is to be considered as being of nature conservation importance at an international level: <ul style="list-style-type: none"> - Habitats or species that form part of the cited interest within an internationally designated site (e.g., Ramsar, SPA and SAC). - A feature (e.g., habitat or population) which is to be considered as being of the highest quality examples in an international context. |
| National | A feature (e.g., habitat or population) which is to be considered as being of nature conservation importance at a national level: <ul style="list-style-type: none"> - Habitats or species that form part of the cited interest within a nationally designated site (e.g., SSSI and National Nature Reserve (NNR)) - A feature (e.g., habitat or population) which is to be considered as being of the highest quality examples in a national context. - Presence of UK Biodiversity Action Plan (BAP) habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected. |
| Regional | A feature (e.g., habitat or population) which is to be considered as being of nature conservation importance at a regional level: <ul style="list-style-type: none"> - Habitats or species that form the cited interest for a non-statutory site (e.g., Local Nature Reserve (LNR)). - Presence of Local BAP habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected. |
| County | Designated sites, such as Wildlife Sites or habitats/species populations of value at a county level (i.e. West Sussex). |
| Local | A feature of importance at district (local authority or local) level: <ul style="list-style-type: none"> - A feature (e.g., habitat or population) that is of nature conservation value importance in a local context only, with insufficient value to merit a formal nature conservation designation. |

Source: Mott MacDonald, 2023 (based on geographic scales identified in CIEEM, 2018).

Features with no ecological importance are rated as being of Negligible importance.

2.5.2 Impact Assessment Criteria

To assess the significance of any potential adverse or beneficial effects of the proposed development on the ecological features that occur within the Zol, consideration has been given to the following factors: extent, magnitude, duration, frequency and timing, reversibility and the cumulation of all anticipated impacts when considered together. The assessment of effects takes into account any embedded mitigation (see Section 4.3) in determining effects and then considers additional mitigation and any residual effects to determine an overall significance.

2.5.3 Likely Impacts

The following elements are considered to have the potential to give rise to likely significant effects during construction and decommissioning of the proposed works and have therefore been considered within this assessment:

1. Permanent and temporary removal and / or disturbance of habitats within and adjacent to the Proposed Scheme which could result in damage or loss of HPI habitats or habitats otherwise of conservation importance including the severance of ecological networks;
2. Water-borne pollution (sediment loading and accidental release of chemicals) leading to deterioration of habitats including their supporting role for protected and otherwise notable species; and
3. Killing and / or injury of protected species and their supporting habitats due to site clearance and construction activities. Construction noise, vibration, lighting could lead to the loss of species populations.

3 Ecological Baseline and Evaluation

Based on the ecological walkover, protected species surveys and the desk study undertaken, an assessment of the ecological importance of designated sites, habitats and protected/notable species that occur or have potential to occur within the Site and Zol is included below.

3.1 Statutory Designated Sites

The desk study returned no records of statutory designated sites for nature conservation within the Zol. There were no NSN designated sites within 10km of the Site boundary.

The Site is situated within the Impact Risk Zone¹ (IRZ) of Cow Wood and Harry's Wood SSSI which is located 2.1km to the north west. Statutory designations are considered to be of National importance.

According to SSSI IRZ information, Natural England will need to be consulted on:

- 'Airports, helipads and other aviation proposals';
- 'Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction'; and
- 'Livestock & poultry units with floorspace >500m², slurry lagoons & digestate stores >750m², manure stores >3500t.'

The proposed works do not fall into any category listed within the IRZ information for the SSSI site that requires Natural England consultation. Owing to the nature of the works, the distance from the Site and the lack of ecological or hydrological connections, further consultation with Natural England is not required. Therefore, Cow Wood and Harry's Wood SSSI is scoped out of further assessment.

3.2 Non-statutory Designated Sites

3.2.1 Local Wildlife Sites (LWS)

The desk study returned records of two non-statutory sites within 2km of the Site, both LWS. The details of these are shown in Table 3.1.

Table 3.1: Non-statutory Designated Sites

| Site name and designation | Minimum distance and direction from the Site | Site description and reason for designation |
|------------------------------------|--|---|
| Orange Gill and Homestead Wood LWS | 1.8 km north west | Areas of oak <i>Quercus spp.</i> and birch <i>Betula spp.</i> woodland. Contains streams, with steep slopes with ground flora of bluebell <i>Hyacinthoides non-scripta</i> and wild daffodil <i>Narcissus pseudonarcissus</i> . Ground flora along streams is species-rich. |
| The Hanger LWS | 2 km south west | Alder <i>Alnus glutinosa</i> , oak, hazel <i>Corylus avellana</i> and ash <i>Fraxinus excelsior</i> woodland. The wood supports a wide range of woodland plants, mosses and liverworts, a good bird community and several uncommon butterflies. |

Source: SxBRC, 2021.

¹ The Impact Risk Zones (IRZs) are a GIS tool developed by Natural England to make rapid initial assessment of the potential risks posed by development proposals to: SSSIs, SACs, SPAs and Ramsar sites. They define zones around each site which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Non-statutory designations are considered to be of up to County importance. Based on the localised nature of the proposed works and no hydrological connection between the Site and the two LWS, no adverse impacts are anticipated. Therefore, these LWS are scoped out of further assessment.

3.2.2 Ancient Semi-Natural Woodland and Veteran Trees

No irreplaceable habitats such as ancient woodland are present within or adjacent to the Site. The closest area of ancient woodland is located 160m south of the Site. No veteran trees were identified within or directly adjacent to the Site, as confirmed by the Arboricultural Constraints Report [639529-MM-N-RPT-0020].

Ancient woodland and veteran trees are considered to be of up to National importance. Based on the absence of these features within, or adjacent, to the Site and the localised nature of the proposed works, ancient woodland and veteran trees are scoped out of further assessment.

3.3 Habitats

A range of habitat types were identified in the survey area. A description of the habitats present on and adjacent to the Site is provided within Table 3.2, alongside their importance and scoping. None of the habitats located on Site are considered HPI. The locations of all habitats are shown on the UK Habitat map in **Appendix D**.

Table 3.2: Description of Existing Habitats on Site

| UK Habitat type and code | Description | Assessment of importance | Scoping |
|----------------------------------|---|--------------------------|------------|
| u1b6 Other developed land | The access road along the south of the Site consisted of road planings and Cuckfield Road is a tarmacked road intersecting the eastern Site boundary. Other developed land within the Site is of no ecological importance and is therefore, scoped out of further assessment. | Negligible | Scoped out |
| g4 Modified grassland | There were margins of modified grassland located within the Site. The species composition of the modified grassland included abundant perennial ryegrass <i>Lolium perenne</i> , occasional Yorkshire fog <i>Holcus lanatus</i> , fescue <i>Festuca</i> sp., creeping thistle <i>Cirsium arvense</i> , creeping buttercup <i>Ranunculus repens</i> , creeping cinquefoil <i>Potentilla reptans</i> , broad-leaved dock <i>Rumex obtusifolius</i> and common nettle <i>Urtica dioica</i> . Rare common comfrey <i>Symphytum officinale</i> , white clover <i>Trifolium repens</i> , spear thistle <i>Cirsium vulgare</i> , ribwort plantain <i>Plantago lanceolata</i> , field-speedwell <i>Veronica persica</i> and round-leaved Crane's-bill <i>Geranium rotundifolium</i> were also recorded in this habitat. The field margins were mown as part of farm site management but cutting regimes differed across the Site. The areas of modified grassland had a sward height of approximately 15cm. Modified grassland within the Site is of limited size and ecological importance, however some will be lost as part of the proposed works. Due to the negligible loss of this habitat type, modified grassland is scoped out of further assessment. | Negligible | Scoped out |
| c1d Non-cereal crops | The majority of the Site consisted of arable cropland. At the time of the survey the crop had recently been planted and so the species could not be determined. Non-cereal crops within the Site are of limited ecological importance. Despite the loss of this habitat type as part of the proposed works, due to the negligible ecological importance, non-cereal crops are scoped out of further assessment. | Negligible | Scoped out |

| UK Habitat type and code | Description | Assessment of importance | Scoping |
|---|---|--------------------------|------------|
| g3c, 17 Other neutral grassland, ruderal/ephemeral | There was one strip of tall ruderal vegetation, located between the WTW access track and southern boundary of the arable cropland. The species comprised abundant common nettle, occasional ivy <i>Hedera helix</i> , broad-leaved dock and creeping thistle, rare white dead nettle <i>Lamium album</i> , ground-ivy <i>Glechoma hederacea</i> and hedge bindweed <i>Calystegia sepium</i> . Other neutral grassland, ruderal/ephemeral within the Site is of limited extent and therefore ecological importance, however some will be lost as part of the proposed works. Due to the negligible loss of this habitat type, modified grassland is scoped out of further assessment. | Negligible | Scoped out |
| w1g6 Line of trees | There are two lines of trees intersecting the southern Site boundary. Both are located along the northern bank of the River Ouse and were approximately 128m and 47m in length. A few of the trees were dead, but the majority were in good condition and comprised of mature dominant alder and rare ash and willow sp. The lines of trees are to be retained and protected during the works. As there will be no loss of this habitat type, line of trees are scoped out of further assessment. | Local | Scoped out |
| r, 191 - Ditch | A dry ditch of approximately 160m was located adjacent to the east of the majority of the h2b 190 other hedgerow with trees (H1), along the western boundary of the Site. This appeared to be a man-made ditch of approximately 0.5m deep and 0.5m wide. At time of survey there was no evidence of water within any sections of the ditch. The section of ditch within the Site is of limited ecological importance, however a small section will be impacted as part of the proposed works that will involve some connecting pipework. The ditch will not be blocked and the habitat reinstated post-construction. Due to the negligible importance and impact on this habitat type, the ditch is scoped out of further assessment. | Negligible | Scoped out |

Source: Mott MacDonald, 2022 & 2023.

3.3.1 Habitats of Principal Importance (HPI)

Four HPI were identified within the Zol. A description of the HPI present on and adjacent to the Site is provided within Table 3.3, alongside their importance and scoping.

Table 3.3: HPI within the Zone of Influence of the Site

| UK Habitat type and code | Description | Assessment of importance | Scoping |
|----------------------------|--|--------------------------|-----------|
| r2 Rivers and lakes | The River Ouse flows from west to east to the south of the Site, with an average depth, at the time of the survey, of approximately 30cm. The small river is approximately 2-3m wide. The river had steep earth banks and in places was shaded by mature alder <i>Alnus glutinosa</i> trees, where it runs adjacent to an area of wet woodland. Rivers are a HPI and HPI can be considered of up to national importance. However, this river is small and does not meet the criteria required to be classified as a priority river (JNCC, 2011). This is because the river appeared to have been historically over deepened and over widened and therefore is not considered near natural. The River Ouse is not included on the Priority River Habitat Map (Natural England, 2023). Overall, the River Ouse within the context of the Site is considered to be of Local importance. | Local | Scoped in |

| UK Habitat type and code | Description | Assessment of importance | Scoping |
|---|---|--------------------------|-----------|
| <p>h2b, 190 Other hedgerows with trees (Labelled as H1 on UKHab Map in Appendix D)</p> | <p>A species-poor hedgerow with trees intersects the western Site boundary. A ditch runs immediately adjacent to the east of this hedgerow and as such forms a feature of this hedgerow. This intact hedgerow was approximately 170m in length, 4m tall and 2m wide. The species composition of the hedgerow differed from the northern half to the southern half. The northern half comprised abundant hawthorn and hazel, frequent oak, occasional field maple and ash. However, the southern half was dominated by <i>Leylandii Cupressocyparis leylandii</i>. This hedgerow is considered a HPI as it is over 20m long and consists of at least one native woody species, and therefore it is of Local importance. The canopy and base were continuous and there was no evidence of any inappropriate management or damage. The eastern side of the hedgerow was bordered by a dry ditch and modified grassland. The northern half of the hedgerow was bordered to the west by modified grassland. The southern half of the hedgerow was bordered to the west by hardstanding within the WTW. There was an absence of invasive species and the majority of the frequent trees were mature in age and in healthy condition. However, the single ash tree present within this hedgerow showed signs of advanced ash die back disease. HPI can be considered of up to national importance, however due to the abundance of this habitat type within the landscape, this other hedgerow with trees is considered to be of local importance.</p> | Local | Scoped in |
| <p>w1d Wet woodland</p> | <p>An area of wet woodland of approximately 0.2ha was located to the south of the Site adjacent to the field of modified grassland. This woodland appeared to be occasionally flooded by the River Ouse, with evidence of wetland areas. The wetland area was dominated by alder. The species comprised frequent mature and semi-mature alder, occasional mature and semi-mature ash and occasional mature pedunculate oak <i>Quercus robur</i>. Ground flora included dominant bramble, occasional hard rush, soft rush and pendulous sedge. Wet woodland is a HPI (JNCC, 2008b). HPI can be considered of up to national importance, however due to the limited extent of this habitat type within the Zol, this parcel of wet woodland is considered to be of Local importance.</p> | Local | Scoped in |
| <p>h2a Hedgerow (Labelled as H2 on UKHab Map in Appendix D)</p> | <p>A species-poor hedgerow without trees was recorded just outside of the Site, located adjacent to the north eastern boundary. Species comprised abundant hawthorn and hazel and occasional hornbeam. This hedgerow is considered a HPI habitat as it is over 20m long and consists of at least one native woody species (JNCC, 2008a) and therefore it is of Local importance. This hedgerow had been recently flailed at time of survey. This hedgerow was approximately 420m in length and 1.5m in height. The hedge was bordered by modified grassland field margins and verges on both sides. There was an absence of invasive non-native species, and bracken <i>Pteridium aquilinum</i> and common ivy were present in the understorey vegetation. This hedgerow contained some gaps and one mature oak tree was located within the section bordering Cuckfield Road. HPI can be considered of up to National importance, however due to the abundance of this habitat type within the landscape, this species-poor hedgerow without trees is considered to be of Local importance.</p> | Local | Scoped in |

Source: Mott MacDonald, 2022 & 2023.

3.4 Species

A summary of the further survey results is provided within Table 3.4.

Table 3.4: Summary of Further Survey Results

| Species | Feature/location | Summary |
|--|--|---|
| Bats | Buildings B1 and B2, and trees T3, T4, T7, T12, T14, T15 and T16. | At least five bat species: common pipistrelle <i>Pipistrellus pipistrellus</i> , soprano pipistrelle <i>Pipistrellus pygmaeus</i> , noctule <i>Nyctalus noctula</i> , serotine <i>Eptesicus serotinus</i> and species of myotis <i>Myotis</i> sp., were seen and or heard on or within 15m of the Site during the five survey visits. No bat emergences were recorded from any of the buildings or trees surveyed. Detailed information can be found in the Bat Preliminary Roost Assessment and Emergence Survey Report [639529-MM-N-RPT-0006]. |
| GCN <i>Triturus cristatus</i> | Seven ponds within 500m of the Site. | The HSI survey indicated that five of seven ponds identified were of 'good' to 'excellent' suitability for GCN, including the disused sludge beds located within the WTW boundary which achieved a score of 'good'. One of the seven ponds returned a positive eDNA result for GCN, with the rest returning negative results. Six population size class assessment surveys were undertaken on the 'positive' pond, which produced a peak population count of ten and therefore has a population size class of small. Detailed information can be found in the GCN Report [639529-MM-N-RPT-0009]. |
| Hazel dormouse | Intact species-rich and species-poor hedgerows within and surrounding the Site ² . | The results of nut searches and nest tube surveys indicated likely absence of dormouse as no dormouse individuals, nests or signs of feeding were identified during the survey period. Detailed information can be found in the Hazel Dormouse Survey Report [639529-MM-N-RPT-0011]. |
| Otter | The River Ouse, including marginal vegetation and wet woodland adjacent to the south of the Site and 200m upstream and downstream, where access allowed. | The results of these surveys indicated that otter is present within the local area and commute along the River Ouse, as spraints and potential otter couches and a holt were identified during the survey period. Detailed information can be found in the Otter Survey Technical Note [639529-MM-N-RPT-0010]. |

Source: Mott MacDonald, 2022-2023.

Based on the survey results above and the conclusions of the PEAR, an assessment of the ecological importance of protected or notable species that occur or have potential to occur within the Site is included below in Table 3.5.

Table 3.5: Importance of Protected and Notable Species

| Species | Importance | Interpretation |
|---|------------|--|
| Protected and notable plants | N/A | The desk study returned 40 records of 20 species of plants from within the ZoI. No notable plant species were found during the site visit and furthermore, there was no suitable habitat identified for notable species within the Site. Overall, the Site consisted of common habitats and all plant species seen on site were considered common. No other protected or notable plant species were observed on site. Therefore, protected and notable plant species will not be considered further in this report. |
| Invasive non-native species (INNS) | Negligible | The desk study returned records of seven invasive plant species from within the ZoI. This included records of Japanese knotweed and Himalayan balsam, both located approximately 1km south east of the Site in 2011. There was also a record of cotoneaster <i>Cotoneaster</i> sp. from |

² A species-rich hedgerow was located approximately 75m to the south of the Site. It formed part of the dormouse survey only and is not considered further in this report.

| Species | Importance | Interpretation |
|-----------------------|------------|---|
| | | <p>2016, located approximately 400m north west of the Site. There were also records of two invasive bird species within the Zol; 16 records of Mandarin duck <i>Aix galericulata</i> and 29 of Canada goose <i>Branta canadensis</i>. Both of these species are included in Part one of Schedule 9 of the 1981 Act.</p> <p>The PEA field survey undertaken in October 2021 identified a stand of Himalayan balsam, located on the northern bank of the River Ouse approximately 100m to the south west of the Site within the marginal vegetation of the river. The second stand of Himalayan balsam was identified during an otter survey in May 2022, located along a stretch of the River Ouse approximately 100m to the east of and outside the Site. This large stand was located within some wet woodland. Himalayan balsam is an invasive plant species on Schedule 2 (Part 2) of the Invasive Alien Species (Enforcement and Permitting) Order 2019 and therefore, invasive species are considered further in this report.</p> |
| Breeding birds | Local | <p>The desk study returned 213 records of 32 species of birds from within the 2km search area around the Site. This includes eleven records of red kite <i>Milvus milvus</i>, six records of woodlark <i>Lullula arborea</i> and three records of kingfisher <i>Alcedo atthis</i>. There are a further three species that are listed on Schedule 1 of the Wildlife and Countryside Act, 1981, with five records of firecrest <i>Regulus ignicapilla</i>, three records of hobby <i>Falco subbuteo</i> and three of barn owl <i>Tyto alba</i>. From the desk study, a further 12 species of birds are on the Birds of Conservation Concern (BoCC) red list, including 16 records of marsh tit <i>Poecile palustris</i>. Another twelve species are found on the BoCC amber list, such as 26 records of mallard <i>Anas platyrhynchos</i>. A full summary of birds identified during the desk study can be found within the PEAR (Mott MacDonald, 2022a).</p> <p>The hedgerows and trees within the Site are suitable for supporting a range of common nesting bird species, including dunnock and mistle thrush as listed above. The arable cropland could also be suitable for ground nesting birds, such as skylark listed above. In turn the rural landscape could provide hunting grounds for species such as barn owl and kestrel. The River Ouse may provide limited habitat for waterfowl such as tufted duck and mallard. Overall, the proposed works could lead to impacts on nesting birds, and therefore these are considered further within this report.</p> |
| Bats | Local | <p>The desk study returned 83 records for eight species of bat from within the Zol. The MAGIC data search also returned two records of European Protected Species (EPS) licences for bats within the 2km search area around the Site. Two licences were granted in 2017, both for brown long-eared bat and common pipistrelle bats, located approximately 400m north west of the Site.</p> <p>Two buildings were assessed to have low bat roosting suitability, and seven trees were assessed to have moderate suitability. One emergence survey was conducted on each of the low suitability buildings and two emergence surveys were conducted on each of the moderate suitability trees. No emergences were observed, but activity was recorded for at least five species of bat within 15m of the Site.</p> <p>Furthermore, the linear habitat features including the river and intact hedgerows with trees are of value to foraging and commuting bats. The wider landscape is also suitable for foraging and commuting bats consisting mainly of waterbodies and hedgerows within an arable setting. Overall, the proposed works could lead to impacts on commuting and foraging bats, and these are therefore considered further within this report.</p> |
| Otter | Local | <p>No records of otter were returned by the desk study from within the 2km search radius around the Site. The MAGIC data search also returned no records of EPS mitigation licences for otters. Otter use the River Ouse to commute through the area, and the watercourse was deemed suitable habitat for otter with undisturbed marginal vegetation.</p> <p>Otter surveys were carried out on 23 May and 30 August 2022 by two suitably experienced Ecologists. The results of these surveys indicated that otter are present within the local area and commute along the River Ouse, as spraints and potential otter couches and a holt were identified</p> |

| Species | Importance | Interpretation |
|--|------------|--|
| | | during the survey period. Otter are therefore considered further within this report. |
| Water Vole <i>Arvicola amphibius</i> | N/A | <p>The desk study returned no records of water vole from within the Zol. The search of MAGIC returned no records of EPS mitigation licence applications for water vole in the study area.</p> <p>The River Ouse has habitat with limited potential to support water vole. During the walkovers, checks were made for signs of water vole burrows and feeding remains and none were identified.</p> <p>Owing to the lack of records and that the marginal vegetation adjacent to the watercourse has been checked and no signs were seen, water vole considered likely to be absent and therefore are not considered further.</p> |
| Badger <i>Meles meles</i> | Local | <p>The desk study returned no records of badgers from within the 2km search area around the Site. No signs of badger nor their setts were recorded within the boundary of the WTW during the field survey. The habitats on Site are sub-optimal as they provide very little coverage. However, badger setts are often found in open arable land so they cannot be ruled out as being present in the vicinity of the Site. There is suitable habitat for badger within the wider landscape, which is mainly arable, with a network of hedgerows and field margins connecting to small areas of woodland.</p> <p>Owing to the mobile nature of badgers and frequent colonisation of new areas, setts could also be created within the Zol, including within the Site, prior to the commencement of the works. Therefore, badgers are considered further in this report.</p> |
| Hazel dormouse | Local | <p>The desk study returned 84 records of hazel dormice from within the 2km search radius. The most recent record is from 2015, located approximately 1200m north east of the Site, where 17 nests were recorded, and three dormice found. The nearest record was located approximately 1100m north west of the Site, also in 2015, with nests and one individual found.</p> <p>Habitat suitable for hazel dormouse was identified within and surrounding the site, including intact species-poor hedgerows containing hazel and bramble and with sufficient connections to nearby blocks of woodland and dense scrub. Nut searches and nest tube surveys were conducted within suitable habitat, with results indicating likely absence due to a lack of individuals, nests or feeding signs identified.</p> <p>The area surrounding the field proposed for the creation of the new wetland supports suitable habitats for hazel dormouse (hedgerows). However, the patchy connectivity of these habitat features to other suitable habitat types that may be occupied by hazel dormouse in the wider landscape may hinder the ability for the animals to utilise the Site. Despite this, due to the high density of hazel dormouse records within proximity to the Site and the general suitability of the habitat within the Site for hazel dormouse, the risk of encountering the species during works remains. Hazel dormouse are therefore considered further within this report.</p> |
| Other mammals (Including SPI hedgehog) | Local | <p>One record of polecat <i>Mustela putorius</i> was returned by the desk study, located approximately 1500m west of the Site in 2012. No signs of polecat were recorded within the boundary of the WTW during the field survey. The habitats on site are sub-optimal and the Site is subject to regular disturbance and human activities. Therefore, the Site is unlikely to support polecat and they are not considered further within this report.</p> <p>The desk study also returned 11 records of European rabbit <i>Oryctolagus cuniculus</i> within the Zol. The most recent record was from 2019, located approximately 700m north of the Site. Although this species is not protected by the Wildlife and Country Act, 1981, they should be considered during any excavation works as they are protected by the Wild Mammals (Protection) Act 1996 which prohibits cruelty and mistreatment. However, this species is not considered important within the context of EclA and is therefore scoped out of further assessment.</p> <p>The desk study returned no records of hedgehog <i>Erinaceus europaeus</i>. However, the modified grassland, hedgerows, and other neutral grassland within the Site provide suitable habitat including coverage and feeding opportunities for hedgehog. Hedgehog is a SPI. There is a risk that</p> |

| Species | Importance | Interpretation |
|--|------------|--|
| GCN | Local | <p>hedgehogs could be present within the Zol and affected by the works, therefore they are considered further within this report.</p> <p>The desk study returned 22 records of GCN from within the search area. Fourteen of these records are all located in a series of ponds on a farm approximately 1200m west of the Site, with the most recent records in 2017. Three other records were located in ponds on a farm approximately 1000m east of the Site, all in 2014.</p> <p>The search of MAGIC returned 10 records of Great Crested Newt Class Survey Licences, carried out from 2015 to 2017 and located approximately 1.2km west of the Site. All of these surveys found GCN to be present. MAGIC also returned results of five Great Crested Newt Pond Surveys, two of which found great crested newts to be present in 2019. These records were located approximately 720m and 1000m south east of the Site.</p> <p>There was some suitable terrestrial habitat for GCN within the Site, including the modified grassland adjacent to the River Ouse, other neutral grassland, dry ditch and hedgerows. Additionally, the areas of modified grassland surrounding the arable cropland had a sufficient thatch that would allow amphibians to use it for hibernation.</p> <p>During the site walkover, the two disused sludge beds located within the WTW were subject to a HSI assessment for GCN. Both waterbodies achieved a score of 0.75, which is categorised as good pond suitability (ARG UK, 2010; Oldham <i>et al.</i>, 2000). A total of seven ponds were identified within 500m of the Site. Following HSI and eDNA surveys, one pond returned positive results for GCN and was subject to a population size class assessment. The results of this assessment of this pond produced a peak population count of ten and therefore has a population size class of small.</p> <p>The area proposed for the creation of the new wetland supports suitable terrestrial habitats for this local GCN population (hedgerows, modified grassland, other neutral grassland). The proposed works will require the removal of modified grassland, arable cropland, other neutral grassland and some trees. Therefore, suitable GCN habitat will be destroyed or damaged and they are considered further within this report.</p> |
| Widespread amphibians (including SPI common toad) | Local | <p>The desk study returned 57 records for four species of widespread amphibians within the 2km search radius including common frog <i>Rana temporaria</i>, common toad <i>Bufo bufo</i>, smooth newt <i>Lissotriton vulgaris</i> and palmate newt <i>Lissotriton helveticus</i>. Common toad is a SPI.</p> <p>There is some suitable habitat for widespread amphibians within the Site, including the modified grassland, other neutral grassland, dry ditch and hedgerows. There is also suitable aquatic habitat within the WTW for amphibians, in the form of two disused sludge beds, which now resemble ponds.</p> <p>As with the paragraph above relating to GCN, the Site provides suitable terrestrial habitat for common toad and due to the substantial records and that common toad is an SPI, common toad is considered further.</p> <p>Other widespread amphibians are not SPI and are therefore scoped out of further assessment in the context of this EclA.</p> |
| Widespread reptiles | Local | <p>No records of reptiles were returned by the desk study from within the 2km search radius around the Site.</p> <p>The modified grassland had sufficient thatch in places that would allow reptiles to use the habitats for hibernation. The other neutral grassland and hedgerow habitats within the Site were suitable for reptiles for hibernation, foraging and rest. The wider area was suitable for reptiles consisting of a range of habitats including farmland, dense scrub, grassland and hedgerows. There is therefore some potential for widespread reptile species such as common lizard <i>Zootoca vivipara</i>, slow worm <i>Anguis fragilis</i> and grass snake <i>Natrix helvetica</i> to be present on the Site and affected by the works, therefore reptiles are considered further in this report.</p> |

| Species | Importance | Interpretation |
|---|------------|--|
| Invertebrates | N/A | <p>The desk study returned 23 records of eight invertebrate species within 2km of the Site. This includes nine records of common darter <i>Sympetrum striolatum</i>, with the nearest record being 780m south east of the Site in 2014 and three records of downy emerald <i>Cordulia aenea</i>, nearest being recorded 740m south east of the Site in 2014. There were also four records of brilliant emerald dragonfly <i>Somatochlora metallica</i>, nearest record 1.8km north east of the Site in 2012. The brilliant emerald is listed as vulnerable on the British Odonata Red List 2008 and is considered to be a nationally rare species. Furthermore, there were two records of brown hairstreak butterfly, with the nearest record 1.1km north west of the Site in 2011. Brown hairstreak is a SPI included in Section 41 of the NERC Act 2006.</p> <p>The habitats present on site are common and widespread and present elsewhere in the local area. The areas which could be suitable for invertebrates are limited to the edge habitats, and therefore if these can be retained and protected it is unlikely that the proposed works will negatively affect invertebrates. The wetland creation involved as part of the proposed works will have a positive effect with regard to invertebrate species. Overall, invertebrates are not considered further in this report.</p> |
| White-clawed crayfish (WCC) <i>Austropotamobius pallipes</i> | Local | <p>No records of WCC were returned by the desk study from within the search area. There were also no records of American signal crayfish <i>Pacifastacus leniusculus</i> which are highly invasive and outcompete the WCC and also spread crayfish plague which wipes-out WCC. However, as no evidence of signal crayfish was found, and because the River Ouse provides suitable habitat for WCC, WCC are considered further in this report.</p> |

Source: Mott MacDonald, 2023.

3.5 Summary of Ecological Feature Importance

The conservation importance of each ecological feature that occurs within the ZoI has been assessed in the relevant sections above and is summarised within Table 3.6.

Table 3.6: Summary of Ecological Feature Importance

| Ecological Feature | Importance | Scoping |
|---|------------|------------|
| Statutory designated sites - Cow Wood and Harry's Wood SSSI (Impact Risk Zone only) | National | Scoped out |
| Non-statutory designated sites - Orange Gill and Homestead Wood LWS and The Hanger LWS | County | Scoped out |
| Ancient semi-natural woodland and veteran trees | National | Scoped out |
| HPIs: rivers, wet woodland, hedgerows | Local | Scoped in |
| u1b6 Other developed land, g4 Modified grassland, c1d Non-cereal crops, g3c Other neutral grassland, w1g6 Line of trees, r, 191 - Ditch | Negligible | Scoped out |
| Protected and notable plant species | N/A | Scoped out |
| Invasive non-native species | Negligible | Scoped in |
| Breeding birds | Local | Scoped in |
| Bats | Local | Scoped in |
| Otter | Local | Scoped in |
| Water vole | N/A | Scoped out |
| Badger | Local | Scoped in |
| Hazel dormouse | Local | Scoped in |
| Hedgehog | Local | Scoped in |
| Other mammals | Local | Scoped out |
| Great crested newt | Local | Scoped in |

| Ecological Feature | Importance | Scoping |
|---------------------------|------------|------------|
| Widespread amphibians | Local | Scoped out |
| Common toad | Local | Scoped in |
| Widespread reptiles | Local | Scoped in |
| Terrestrial invertebrates | N/A | Scoped out |
| White-clawed crayfish | Local | Scoped in |

Source: Mott MacDonald, 2023.

3.6 Identification of Important Ecological Features

For the purposes of the assessment of effects and mitigation recommendations, any ecological features of negligible significance have been scoped out of the assessment.

On the basis of the ecological baseline information detailed above, the following features have been identified as Important Ecological Features (IEFs) within the context of the Site and are therefore scoped into the impact assessment:

- HPIs: river, h2b other hedgerows, wet woodland, h2a hedgerows;
- Invasive non-native species;
- Breeding birds;
- Foraging and commuting bats;
- Otter;
- Badger;
- Hazel dormouse;
- Hedgehog;
- Great crested newt;
- Widespread reptiles;
- Common toad; and
- White-clawed crayfish.

4 Impact Assessment, Mitigation and Significance of Residual Effects

4.1 Overview

The following section sets out:

- The key avoidance measures which have been embedded into the design of the proposed works in order to reduce potential impacts;
- The anticipated impacts of the proposed development on the IEFs identified; and
- The mitigation and compensation measures considered necessary and proportionate to reduce or off-set impacts.

This section characterises the predicted impacts and subsequent effects of the proposed works on ecological features present within the ZoI which have been scoped in, in accordance with Section 3. It also sets out agreed avoidance, embedded mitigation, compensation and enhancement measures (where applicable) and assesses the significance of the effects of the proposed development on these features after applying the mitigation hierarchy.

4.2 Avoidance Measures

In line with policy and best practice, the proposed works design has been informed by the ecological assessment and constraints. As a result, the proposed works have been designed to avoid or minimise impacts to HPIs such as hedgerows and wet woodland.

Other proposed measures to minimise impacts, such as best practice working measures during construction, are considered below within Table 4.1 under Mitigation.

4.3 Embedded Mitigation Measures

4.3.1 Construction Environmental Management Plan (CEMP)

A CEMP has been produced and will be implemented during the construction phase of the proposed works. The CEMP will provide a framework within which to monitor, avoid and or minimise likely impacts to ecological features arising from the proposed works, as far as reasonably practicable. The CEMP has been produced and adapted in accordance with the findings of the field surveys undertaken. The CEMP contains a series of control measures relating to the safeguarding of habitats and wildlife. The CEMP also outlines how noise, air, waste, water and traffic impacts will be managed throughout the construction phase.

Features that do not qualify as important as part of this assessment, are scoped out of Table 4.1 below. However, where appropriate measures for these protected species are included within the CEMP. This includes precautionary measures such as:

- A pre-works check will be undertaken for mammal burrows by an experienced ecologist. Where present, burrows will be carefully excavated by hand or small machine in sections under ecological supervision to allow mammals to escape.
- A pre-works nesting bird check of all terrestrial areas within 50m of the site will be carried out by an experienced ornithologist no more than 24 hours prior to works commencing. Should any active bird nest be identified then this must be left within an appropriately sized buffer (size dependent on the species identified and the consideration of the impact of the

construction works), as advised by the ornithologist, until the chicks have fully fledged and the nest is unoccupied.

- All vegetation clearance will be undertaken in a phased manner under ecological supervision. The removal of any hibernacula would be undertaken between April and the end of October (subject to weather conditions), whilst species such as smooth newt and common frog are active. A toolbox talk would be provided to all those working on-site.
- Excavations will be fenced off and/or covered to avoid animals becoming trapped, with mammal ladders installed where required;
- Spoil piles will be fenced off; and
- No equipment or chemicals will be stored within habitat suitable for hedgehog or other mammals (including fuel for equipment and machinery).

4.3.2 Landscaping Proposals

Landscaping proposals have been produced which will ensure the successful implementation and delivery of landscape integration measures, visual screening and ecological habitat creation. See Section 5 for further detail regarding the enhancement measures to be undertaken post construction.

4.4 Biodiversity Net Gain

BNG will not be mandatory at point of submission and is therefore to be completed alongside the planning application. Southern Water will continue to work with the council to ensure BNG is appropriately addressed for the development. Full details will be outlined within the BNG Report.

The works require the clearance of some of the habitats on site to facilitate the proposed ICW. However these habitats are of negligible ecological importance and the habitat creation post-construction will be of higher value to local wildlife. The proposed works plan shows habitats lost within the Site include 'c1d non-cereal crops', 'g4 modified grassland' and g3c, 17 other neutral grassland, ruderal/ephemeral'. In addition, four to six leylandii trees (located within H1 the 'h2b, 190 other hedgerow with trees') are set to be lost so that pipework can be installed to connect the ICW to the existing WTW infrastructure. The proposed works also involve a change in encroachment for the existing r, 191 ditch that intersects the western Site boundary. The ditch will not be blocked by these works and so will continue to perform as a field drain. The working width will be kept to a minimum size to impact as little of the ditch as possible. The impact of the proposed works on the banks of the River Ouse and the ditch and the associated riparian zone is included within the BNG calculations to ensure that the project provides a 10% uplift in watercourse units. This is in line with Local Policy DPN2 of the updated District Plan.

Habitats to be created on Site will include 'f2f other swamps', 'g4 modified grassland', 'g3c other neutral grassland' and 25 individual shrub plants comprising five native species. These habitats are assumed to be of poor condition as a worst-case scenario. Furthermore, one species-rich native hedgerow and 24 individual trees comprising three native species, all of moderate condition, will be created. These habitats have been selected to maximise biodiversity units and benefit a range of protected and notable species.

The above actions will ensure that although there is an impact to habitats on site in terms of a permanent loss, the majority of habitats to be removed are of low value to biodiversity and do not include any very-high distinctiveness or irreplaceable habitats. The landscape design leads to better-quality habitats post-construction. As such it is considered that there would be a beneficial effect on habitats on site as a whole. This is in line with Local Policy DPN2 of the updated District Plan.

4.5 Assessment of Construction Impacts, Mitigation and Residual Effects

An assessment of the anticipated impacts on ecological features and the mitigation for each feature is set out within Table 4.1.

Table 4.1: Assessment of Impacts of the Proposed Works and Mitigation

| Feature | Location | Importance | Impact Assessment | Embedded Mitigation Measures Applied | Impact Characterisation (after application of embedded mitigation measures) | | | | Additional Mitigation | Residual Effect | Overall Significance |
|--|---|------------|--|--|---|---------------------------------|-----------------------------------|---------------|-----------------------|-----------------|----------------------|
| | | | | | Positive, negative or neutral | Extent | Duration/frequency of timing | Reversibility | | | |
| HPIs | | | | | | | | | | | |
| River Ouse | 10m south of the Site | County | The proposed works will improve the quality standards of the final effluent released into the watercourse to the south of the Site which will result in a beneficial effect to this habitat. In addition, the proposed works include the construction of two headwalls and culverts to connect the flood mitigation feature to the River Ouse. The construction areas for the headwalls must be kept as restricted as possible to avoid impacts on the habitats along the northern bank of the River Ouse. | The CEMP will include pollution and hydrological impact avoidance measures including the use of spill kits and storing materials away from watercourses. The impact of the works on the River Ouse and the associated riparian zone is included within the BNG calculations to ensure that the project provides a 10% uplift in watercourse units. This is in line with Local Policy DPN2 of the updated District Plan. Further details of the BNG calculations will be outlined in the BNG Report. | Neutral | ZoI and watercourses downstream | Throughout the construction phase | Reversible | None | N/A | Not significant |
| h2b, 190 Other hedgerow with trees (H1) | Intersects the Site on the western boundary | Local | The works require the clearance of some of the habitats on site to facilitate the proposed ICW. This includes 4-6 leylandii trees so that pipework can be installed to connect the ICW to the existing WTW infrastructure. The rest of this hedgerow is offsite and will be retained and protected through appropriate measures set out in the CEMP. Overall, the hedgerow will not be losing any length and there will be a sufficient number of trees retained to retain its habitat classification and condition. The proposed works have been designed to avoid the native mature trees. This is in line with Local Policy DPN4 of the updated District Plan. The landscape design includes the creation of an additional species-rich native hedgerow along the southern boundary of the Site. This will result in greater hedgerow connectivity across the Site. | Where construction activities are proposed within the rooting zone of trees or hedgerows, the potential for significant damage exists. The RPA represents the minimum area that should be retained undisturbed around a tree or hedgerow for the avoidance of an unacceptable degree of root disturbance. The required RPA of a tree is calculated, and typically plotted as a circle to determine constraints or the location of protective fencing. The RPA dimensions are stated in Appendix A of the Arboricultural Constraints Report [639529-MM-N-RPT-0020]. Tree protection measures e.g. temporary protective barriers and ground protection, are likely to be required to protect retained trees during the construction phase of this Scheme. This will be in line with Local Policy DPN4 of the updated District Plan. The BS5837:2012 default specification for temporary protective barriers and ground protection are contained in Appendix F of the Arboricultural Constraints Report. As there are hedgerows in the Site baseline, at least a 10% net gain in hedgerow units will need to be achieved post-construction. A species-rich native hedgerow will be planted to achieve this necessary uplift. This is in line with Local Policy DPN2 of the updated District Plan. Further details of these calculations will be outlined in the BNG Report. | Positive | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |
| Wet woodland | ~30m south of the Site | Local | The proposed works will not directly impact this wet woodland habitat, however pollution events could occur to habitats within the immediate and local vicinity of the site. | Embedded mitigation measures, secured through the CEMP, which includes pollution and hydrological impact avoidance measures (including the use of spill kits and storing materials away from HPI and watercourses), will be implemented to minimise the risk of accidental damage or habitat degradation to HPIs. | Neutral | ZoI | Throughout the construction phase | Reversible | None | N/A | Not significant |
| h2a hedgerow (H2) | Adjacent to the outside of the northern and eastern Site boundaries | Local | The proposed works plan shows hedgerows to the north and east of the Site as retained. There will be no loss of this habitat and this would be ensured through appropriate protection measures set out in the CEMP. These will avoid damage to the roots or hedgerow structure during the construction phase. An existing gap in the eastern boundary hedgerow is to be used | Where construction activities are proposed within the rooting zone of trees or hedgerows, the potential for significant damage exists. The Root Protection Area (RPA) represents the minimum area that should be retained undisturbed around a tree or hedgerow for the avoidance of an unacceptable degree of root disturbance. The required RPA of a tree is calculated, and typically plotted as a circle to determine constraints or the location of protective fencing. | Positive | ZoI | Throughout the construction phase | Reversible | None | N/A | Not significant |

| Feature | Location | Importance | Impact Assessment | Embedded Mitigation Measures Applied | Impact Characterisation (after application of embedded mitigation measures) | | | | Additional Mitigation | Residual Effect | Overall Significance |
|------------------------------------|--|------------|--|--|---|-----------|-----------------------------------|---------------|-----------------------|-----------------|----------------------|
| | | | | | Positive, negative or neutral | Extent | Duration/frequency of timing | Reversibility | | | |
| | | | as the entrance to the permanent access track for the scheme. The landscape design includes the creation of an additional species-rich native hedgerow along the southern boundary of the Site. This will result in greater hedgerow connectivity across the Site. | The RPA dimensions are stated in Appendix A of the Arboricultural Constraints Report [639529-MM-N-RPT-0020]. Tree protection measures e.g. temporary protective barriers and ground protection, are likely to be required to protect retained trees during the construction phase of this Scheme. This will be in line with Local Policy DPN4 of the updated District Plan. The BS5837:2012 default specification for temporary protective barriers and ground protection are contained in Appendix F of the Arboricultural Constraints Report. | | | | | | | |
| Protected Species | | | | | | | | | | | |
| Invasive non-native species | Riparian zone of River Ouse. | Negligible | Stand 1 is located on the northern bank of the River Ouse approximately 100m upstream of the Site. Avoidance of the risks will not be possible when working within the marginal vegetation of the River Ouse for the works required to connect the flood mitigation area with the river. These works could include the construction of a new outfall directly to the south of the Site boundary. Mitigation measures are required. The proposals do not require any work within 7m of Stand 2, which is located approximately 100m to the east. Due to this stand of Himalayan balsam also being located outside of the Site boundary, it is unlikely to be directly affected by the proposed works and total avoidance of the stand can be applied. The stand is also located downstream of the Site and therefore does not pose a risk of spread via the River Ouse. Therefore, no mitigation is required for this stand. | An INNS Method Statement Report [639529-MM-N-MS-0001] has been produced, which details recommendations to minimise the risk of spreading the plant unintentionally during the works, and methods for the removal of the plants from the Site, if necessary. Management methods outlined in this report include: <ul style="list-style-type: none"> Setting up exclusion zones along the northern bank of the Ouse to exclude and protect all vegetation on the river bank; A suitably experienced ecologist removing any emerging seedlings prior to and throughout the construction period before they flower and become seedheads to reduce the number of seeds that may be present within the works area; Track-matting installed in locations along the bank where machinery may need to track, for the works on the riverbank to connect the flood mitigation area with the river; and Appropriate disposal of excavated contaminated soil. Following the above method statement there is not considered to be any residual effects as a result of the spread of invasive species on Site. | Neutral | Zol | Throughout the construction phase | Reversible | None | N/A | Not significant |
| Breeding birds | Suitable habitats – hedgerows (including trees), wet woodland, arable land, wider rural landscape. | Local | The hedgerows, wet woodland and arable land within and adjacent to the Site provide suitable habitat for breeding birds. Any loss of these habitats would lead to a loss of nesting habitat for birds and therefore an impact to breeding birds in the area. The modified grassland and non-cereal crops are due to be removed as part of the proposed works. Furthermore, work is required to the 'h2b 190 Other hedgerow with trees' (H1) to remove 4-6 leylandii trees, in order to connect the ICW to the existing WTW. These trees may provide suitable habitat for breeding birds. The landscape design includes the creation of wetland cells that will increase local invertebrate populations and therefore provide additional foraging resource for birds. Furthermore, the planting of an additional species-rich native hedgerow along the southern boundary of the Site will result in greater hedgerow connectivity across the Site and increased nesting habitat. | Avoidance of impacts on common breeding bird species would be ensured where possible through undertaking works outside of the breeding bird season (outside March to August inclusive but can vary depending on species/or seasonal constraints). Where this is not possible, pre-clearance checks would be undertaken by an experienced ecologist not more than 48 hours prior to the start of work to identify any nests that could be affected by vegetation clearance. If an active nest is found, it would be left in-situ and protected from the works by an exclusion zone (size determined by the ecologist). No works will be undertaken in the exclusion zone until the birds have fledged, which may take up to six weeks depending on the species present. The habitats created following the construction of the Integrated Wetland will be of higher value to breeding birds, including hedgerows, individual shrubs and trees and wetland. Following the above actions there is not considered to be any residual effects to breeding birds on Site. | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |
| Roosting, foraging and | Suitable habitat – | Local | Loss of foraging and commuting habitat, as well as breaking of habitat connectivity for locally | Habitat suitable for roosting, commuting and foraging bats (e.g. linear features around the Site boundary (hedgerows | Positive | Site only | Throughout the | Reversible | None | N/A | Not significant |

| Feature | Location | Importance | Impact Assessment | Embedded Mitigation Measures Applied | Impact Characterisation (after application of embedded mitigation measures) | | | | Additional Mitigation | Residual Effect | Overall Significance |
|-----------------------|--|------------|---|---|---|-----------|-----------------------------------|---------------|-----------------------|-----------------|----------------------|
| | | | | | Positive, negative or neutral | Extent | Duration/frequency of timing | Reversibility | | | |
| commuting bats | linear features on Site including the river and hedgerows. Wider landscape also includes suitable foraging and commuting habitat. | | occurring bat species. The loss of 4-6 leylandii trees will form a gap in the 'h2b 190 Other hedgerow with trees' (H1), however this is not considered to be such a significant gap that it would prevent bats from commuting along this hedgerow. These leylandii trees had no suitability for roosting bats. Any works undertaken at night or the introduction of artificial lighting to the Site has the potential to adversely impact foraging and commuting bats. The landscape design includes the creation of wetland cells that will increase local invertebrate populations and therefore provide additional foraging resource for bats. Furthermore, an additional species-rich native hedgerow along the southern boundary of the Site will result in greater hedgerow connectivity across the Site. | and line of trees) and the River Ouse to the south) will be retained and protected during construction. This is in line with Local Policy DPN1 of the updated District Plan. Night-time working in the first instance would be avoided. If night-time working is required, any lighting will follow best practice in Bat Conservation Trust and Institution of Lighting Professionals (2018) and avoid light spill onto the suitable features for foraging and commuting bats identified. Actions would include downward facing, directional lighting, along with minimising the duration of lighting for example through movement sensors. Full mitigation details are outlined in the Bat Preliminary Roost Assessment and Emergence Survey Report [639529-MM-N-RPT-0006]. It is considered that the above mitigation will ensure no residual effect on roosting, foraging and commuting bats. | | | construction phase | | | | |
| Otter | River Ouse, wet woodland to the south of the Site. | Local | Whilst the construction works are undertaken, there is the potential for indirect impacts such as increased noise and lighting in the area. Whilst the works are within 5m of the riparian habitat, the terrestrial habitat that is highly suitable for otter (wet woodland on the opposite side of Cuckfield Road) is >30m away. There are trees and vegetation along the riverbank that could prevent some light spill onto the watercourse. The Site is adjacent to the busy Cuckfield Road, which already raises levels of noise and light in the area as large heavy goods vehicles use this road at speed. In addition, large farm machinery is used in the arable field within the RLB. Therefore, it is not considered that the works would significantly raise noise levels in a way that would impact any resting otter within 30m. Features suitable for otter will not be affected by the proposed works and therefore will be retained. Furthermore, features that could be used by otter are unlikely to change condition owing to the location of the features and existing disturbance. Otter could use the river to commute through the landscape, although otter can be active through the day, they are highly active in early mornings, evenings and during the night. Therefore, further mitigation is required. | The culvert and headwall works will encroach into the riparian habitat to the south of the existing access track. However, there should be no fragmentation of the river habitat or surrounding terrestrial habitat which is suitable for otter. No resting sites were confirmed during the surveys. Embedded mitigation measures secured through the CEMP, include pre-construction checks of the area for presence of new resting sites. Should any resting sites for otter be identified and need to be removed to facilitate the proposed works or if there is a chance that otter may be disturbed, a mitigation licence from Natural England may be required. This licence would protect otter from harm or injury during the habitat clearance works. The location of the work compounds will be at least 30m away from river and wet woodland habitats to the south of the Site. All works should be limited to daylight hours and should avoid the use of artificial lighting. Night work should be avoided wherever possible, to reduce artificial light spill into the wet woodland and river habitats to the south of the Site boundary. If night work must be undertaken, then the lighting proposals should follow best practice to create a sensitive lighting scheme (see above 'Foraging and commuting bats'). Overall, it is considered that the above mitigation actions will result in no residual effects on otter present in the area. | Neutral | ZoI | Throughout the construction phase | Reversible | None | N/A | Not significant |
| Badger | Suitable habitat – non-cereal crops, modified grassland, wider rural landscape: arable with a network of hedgerows and field margins | Local | The construction works have the potential to impact foraging and commuting badgers in the wider vicinity through disturbance particularly if the work is undertaken at night. Construction works could additionally directly impact foraging badgers if present through entrapment in trenches or through artificial lighting. The arable field situated within the RLB may provide suitable habitat for badger. The wider landscape also offers multiple parcels of suitable habitat for badgers including woodlands and arable fields. It is therefore considered possible | Construction safeguards would be employed as part of a CEMP including the following actions: ● Excavations should be fenced off and/or covered to avoid animals becoming trapped, with mammal ladders or a 45° slope installed; ● Spoil piles will be fenced off; and ● No equipment or chemicals will be stored within habitat suitable for badgers (including fuel for equipment and machinery). | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |

| Feature | Location | Importance | Impact Assessment | Embedded Mitigation Measures Applied | Impact Characterisation (after application of embedded mitigation measures) | | | | Additional Mitigation | Residual Effect | Overall Significance |
|-----------------------|---|------------|--|---|---|-----------|-----------------------------------|---------------|-----------------------|-----------------|----------------------|
| | | | | | Positive, negative or neutral | Extent | Duration/frequency of timing | Reversibility | | | |
| | connecting to small areas of woodland. | | that badgers could colonise the Site or build a sett within 30m of the Site. | <p>Embedded mitigation in respect of bats and lighting will also reduce impacts on badger (see above 'Roosting, foraging and commuting bats').</p> <p>Embedded mitigation measures secured through the CEMP, include pre-construction surveys to check the area for presence of new badger setts. This badger survey should be undertaken in all areas within 30m of the proposed works, to check for signs of badgers and their setts. Further actions may be required if a sett is found within 30m of the proposed works.</p> <p>It is considered the above mitigation actions will result in no residual effects on foraging and commuting badgers present in the area.</p> | | | | | | | |
| Hazel dormouse | Intact species-poor hedgerows bordering the Site. | Local | <p>The proposed works plan shows hedgerows to the north and east of the Site remaining in situ (H2). This is in line with Local Policy DPN1 of the updated District Plan. The area of other neutral grassland within the south of the Site is set to be replaced by a flood mitigation feature (see Landscape Plan in Appendix A).</p> <p>Overall, due to the high density of hazel dormouse records within proximity to the Site and the general suitability of the habitat within the Site for hazel dormouse, the risk of encountering the species during works remains.</p> <p>The landscape design includes the creation of an additional species-rich native hedgerow along the southern boundary of the Site, which will result in greater hedgerow connectivity across the Site for hazel dormouse.</p> | <p>There will be no removal of any hedgerow habitats suitable for dormice within the Site. Approximately 4-6 leylandii trees are set to be removed as part of the design. These trees form part of the 'Other hedgerow with trees' (H1), however they do not provide suitable habitat for dormice, owing to the dominant species.</p> <p>Embedded mitigation secured through the CEMP, includes measures such as all vegetation clearance must be undertaken in a phased manner under ecological supervision. A toolbox talk would be provided to all those working on-site. If evidence of dormice is found, works will cease until advice has been obtained from the Site ecologist.</p> <p>Following the above embedded mitigation actions, it is considered that there will be no residual effects to hazel dormouse in the vicinity of the proposed works.</p> | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |
| Hedgehog | Suitable habitats – modified grassland, other neutral grassland, hedgerows surrounding landscape (woodland) | Local | <p>Although no hedgehogs were recorded on site, there is potential the species to enter the Site during works. It is considered that groundworks and excavations within the proposed works area could result in entrapment of hedgehog.</p> <p>Works within the grassland and hedgerow areas of the Site could impact foraging hedgehogs due to disturbance from noise and light, especially if works are undertaken at night.</p> <p>The landscape design includes the creation of an additional species-rich native hedgerow along the southern boundary of the Site, which will result in greater hedgerow connectivity across the Site for hedgehog.</p> | <p>Construction safeguards would be employed as part of a CEMP including the following actions:</p> <ul style="list-style-type: none"> Excavations will be fenced off and/or covered to avoid hedgehog becoming trapped, with mammal ladders installed where required; Spoil piles will be fenced off; and No equipment or chemicals will be stored within habitat suitable for hedgehog (including fuel for equipment and machinery). <p>Mitigation in respect of bats and lighting will also reduce impacts on hedgehog (see above 'Foraging and commuting bats').</p> <p>The above mitigation actions will result in no residual effects on hedgehog.</p> | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |

| Feature | Location | Importance | Impact Assessment | Embedded Mitigation Measures Applied | Impact Characterisation (after application of embedded mitigation measures) | | | | Additional Mitigation | Residual Effect | Overall Significance |
|----------------------------|---|------------|--|---|---|-----------|-----------------------------------|---------------|-----------------------|-----------------|----------------------|
| | | | | | Positive, negative or neutral | Extent | Duration/frequency of timing | Reversibility | | | |
| Great crested newt | Suitable habitat within the Site – arable land, modified grassland, other neutral grassland, hedgerows, ponds within the wider landscape, ditch | Local | <p>The area proposed for the creation of the new wetland is arable land, bordered to the north and east by a h2a hedgerow (H2), to the south by other neutral grassland and to the west by a 'h2b 190 Other hedgerow with trees' (H1). Arable land is considered unfavourable for GCN due to the lack of prey availability and management regimes which may affect GCN dispersal (Langton <i>et al.</i>, 2001). The proposed works will result in the removal of some areas of arable field margins (modified grassland) and other neutral grassland. The installation of pipework over the ditch will also impact this suitable habitat. Therefore, suitable GCN habitat will be destroyed or damaged as part of the proposed works.</p> <p>The landscape design includes the creation of wetland cells that could provide suitable aquatic habitat for GCN once in operation. Furthermore, an additional species-rich native hedgerow along the southern boundary of the Site will result in greater hedgerow connectivity across the Site. The addition of boulders into the flood mitigation feature post-construction will provide additional habitat for amphibians.</p> | <p>The GCN positive pond is located 30m east of the Site and will not be damaged or destroyed as part of the works.</p> <p>The works will be carried out under the Southern Water Services Ltd Organisational Licence (Appendix G).</p> <p>Compensatory habitat will be created to mitigate the loss of GCN habitat, for example if hibernacula are removed, alternative suitable hibernacula will be installed prior to the commencement of works, this also applies to the removal of any suitable GCN habitat, it must be on a like for like basis. No hibernacula have been identified within the Site. The post-construction habitats will be more suitable for GCN than the pre-construction habitats, satisfying the above requirement.</p> <p>Once approval to use the licence has been obtained from Natural England, the following methodology will be followed during the active newt season (March to October inclusive, during favourable weather and once it has reached five degrees for five consecutive days and nights):</p> <ul style="list-style-type: none"> Under ecological supervision any vegetation which could be suitable GCN habitat will be cut to a minimum of 250mm; A licenced ecologist will undertake a fingertip search for GCN, including dismantling any suitable refugia by hand; Following completion of the above, the following day the vegetation will be cut to ground level, starting at one end and working to the other to allow any wildlife to safely move to retained habitat to the north and south; and The roots will be removed under ecological supervision. <p>If any GCN are found during the above, these will be put into a suitable container with shelter and moved to suitable adjacent terrestrial habitat. Exclusion fencing could be used to reduce risk of GCN re-entering the Site during the construction phase.</p> <p>Full mitigation details are outlined in the Great Crested Newt Report [639529-MM-N-RPT-0009].</p> <p>Overall, the works will be providing more suitable terrestrial habitat for GCN post-construction. Following the above mitigation actions there will be no residual effects on GCN in the area.</p> | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |
| Widespread reptiles | Suitable habitats within the Site – modified grassland, other neutral grassland, hedgerows, ditch | Local | <p>The proposed works will result in the loss of modified grassland and other neutral grassland; both of which have potential to support local widespread reptiles. This would result in impacts to reptiles through a loss of foraging and basking habitat.</p> <p>Removal of any hibernacula would result in impacts to reptiles through the loss of suitable refugia. Construction works have the potential to directly impact individuals present through killing/injuring, whilst indirect effects such as dust-deposition or run-off may also adversely affect this species group.</p> | <p>Embedded mitigation secured through the CEMP, includes measures such as all vegetation clearance must be undertaken in a phased manner under ecological supervision. The removal of any hibernacula would be undertaken between April and the end of October (subject to weather conditions), whilst reptiles are active. A toolbox talk would be provided to all those working on-site. If evidence of reptiles is found, works will cease until advice has been obtained from the Site ecologist.</p> <p>A HMMP will be created for the ICW and management would be long-term and overseen by a suitably experienced ecologist. The habitats on site will eventually be of higher quality for reptiles than the pre-construction habitats.</p> <p>Considering the mitigation and compensation actions above, no residual effects are expected on widespread reptiles.</p> | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |

| Feature | Location | Importance | Impact Assessment | Embedded Mitigation Measures Applied | Impact Characterisation (after application of embedded mitigation measures) | | | | Additional Mitigation | Residual Effect | Overall Significance |
|------------------------------------|---|------------|---|--|---|-----------|-----------------------------------|---------------|-----------------------|-----------------|----------------------|
| | | | | | Positive, negative or neutral | Extent | Duration/frequency of timing | Reversibility | | | |
| Common toad | Suitable habitats within the Site – modified grassland, other neutral grassland, hedgerows, ditch | Local | <p>The proposed works will result in the loss of modified grassland and other neutral grassland; both of which have potential to support common toad. This would result in impacts to common toad through a loss of foraging habitat.</p> <p>Removal of any hibernacula would result in impacts to common toad through the loss of suitable refugia. Construction works have the potential to directly impact individuals present through killing/injuring, whilst indirect effects such as dust-deposition or run-off may also adversely affect this species.</p> <p>The landscape design includes the creation of wetland cells that could provide suitable aquatic habitat for common toad once in operation. Furthermore, an additional species-rich native hedgerow along the southern boundary of the Site will result in greater hedgerow connectivity across the Site. The addition of boulders into the flood mitigation feature post-construction will provide additional habitat for amphibians.</p> | <p>Embedded mitigation secured through the CEMP, includes measures such as all vegetation clearance will be undertaken in a phased manner under ecological supervision. The removal of any hibernacula would be undertaken between April and the end of October (subject to weather conditions), whilst common toad is active. A toolbox talk would be provided to all those working on-site. If evidence of common toad is found, works will cease until advice has been obtained from the Site ecologist.</p> <p>A HMMP would be created for the ICW and management would be long-term and overseen by a suitably experienced ecologist. The habitats on site will eventually be of higher quality for common toads than the pre-construction habitats. Considering the mitigation and compensation actions above, no residual effects are expected on common toads.</p> | Neutral | Site only | Throughout the construction phase | Reversible | None | N/A | Not significant |
| White-clawed crayfish (WCC) | The River Ouse | Local | <p>It is considered highly unlikely that WCC are present in the River Ouse, owing to the lack of records. The proposed works include the installation of two headwalls on the northern bank of the River Ouse. However, these headwalls will be located above the channel and therefore no direct impacts are anticipated upon any WCC that could be present within the area. Indirect impacts could occur through pathways such as pollution events.</p> | <p>Embedded mitigation measures secured within the CEMP includes pollution and hydrological impact avoidance measures including the use of spill kits and storing materials away from watercourses. This would minimise the risk of accidental damage or habitat degradation of habitat suitable for WCC.</p> | Neutral | ZoI | Throughout the construction phase | Reversible | None | N/A | Not significant |

4.6 Operational Impacts, Mitigation and Residual Effects

During operation of the Site, adverse impacts on IEFs are possible from noise, vibration, air pollution, waste and traffic movements. However, for the reasons given below, such impacts are considered unlikely. No operational effects are predicted, and no mitigation or compensation is considered necessary.

The proposed works will improve the quality standards of the final effluent released to the watercourse to the south of the Site which will result in a beneficial effect to this habitat.

4.6.1 Noise and Vibration

The proposed development will introduce some minor additional noise during operation through maintenance activities and associated traffic movements. Given the activity type and limited frequency significant effects are not deemed likely (Mott MacDonald, 2023c).

There will be no new sources of vibration.

4.6.2 Air Pollution

Defra predictions indicate that the background concentrations of pollutants within the Site boundary are unlikely to exceed the relevant objectives for all relevant pollutants. Ambient pollutant concentrations of NO₂, PM₁₀ and PM_{2.5} are generally predicted to decrease into the future, due to uptake of cleaner vehicles and technologies; as such it is considered that air quality conditions at the proposed development and surrounds would improve and continue to meet the air quality objectives in future years (Mott MacDonald, 2023b).

The risk of construction activities on dust soiling effects, human health, and ecological receptors without mitigation is also deemed as 'Low' (Mott MacDonald, 2023b).

Further details on changes in air quality are outlined within the Air Quality Report [639529-MM-N-RPT-0026].

4.6.3 Waste

There will be no increase in waste production. No new infrastructure, processes or changes in licences are required to handle this waste.

4.6.4 Traffic Movements

Once constructed the Site will continue to operate as at present. Traffic movements are expected to remain unchanged following opening of the proposed development (Mott MacDonald, 2023b) and as a result, traffic emissions during the operational phase are not considered further within this report.

5 Ecological Enhancements

5.1 Ecological Enhancements

In line with national and local planning policy, the opportunity will be taken to incorporate ecological enhancements into the design of the proposed works. Based on the current proposals, the following enhancements are considered to be appropriate:

- **Habitat Creation:** A BNG calculation is in progress for the Site and habitat creation opportunities have been identified. The proposed works will result in the creation of habitats of higher value to biodiversity and local wildlife such as reedbeds and other neutral grassland. A species-rich native hedgerow of approximately 178m will be planted along the southern boundary of the Site, providing additional connectivity and 24 individual trees comprising three native species will be planted across the Site. Furthermore, 25 individual native shrub species will also be planted, comprising five native species. Due to the limited size of the Site, watercourse enhancement opportunities are being investigated off site.
- **Habitat Management and Monitoring Plan (HMMP):** All habitat creation will follow a management plan and be overseen by a suitably experienced ecologist. This plan will detail how the land will be managed over the subsequent 30 years. This will be in line with Local Policy DPN2 of the updated District Plan.
- The addition of boulders into the flood mitigation feature will provide additional habitat for invertebrates and amphibians. Furthermore, limbs from the tree with ash dieback (within H1 the 'h2b 190 other hedgerow with trees') are planned to be removed for health and safety purposes. These limbs will be placed in piles within the flood mitigation feature and secured to ensure that they cannot float away.

6 Conclusions

The proposed works at Staplefield WTW are to create an ICW which has been designed to deliver a system to treat the incoming phosphorus load to meet the 0.5mg/l TP permit as well as provide wider environmental benefits in terms of biodiversity, carbon sequestration and landscape design.

There will not be any residual adverse effects on species and habitats due to the operation of the Site post-construction, as factors including noise, vibration, air pollution and traffic movements will be negligible and are unlikely to have any adverse effects on site when the new structures are in place.

During construction, works will be carried out under the appropriate Southern Water Services Ltd Organisational Licence where necessary, for activities which may result in impacts to GCN. Embedded mitigation measures will be implemented to avoid/mitigate any potential adverse impacts to ecological features and secured via a CEMP and landscaping proposals. With these mitigation measures implemented, there will be no significant adverse effects on habitats or species as a result of the proposed works. The proposed works will improve the quality of the final effluent released into the watercourse to the south of the site which will result in a beneficial effect to this habitat. The landscape proposals provide higher quality habitat than was lost and have been designed to enable a minimum 10% uplift in area habitats and hedgerow BNG units. The permanent gain of habitats arising from the construction of the ICW is considered to be a beneficial effect, that would also benefit those species that the new habitats would be able to support, such as foraging bats.

References

- Bat Conservation Trust and Institution of Lighting Professionals (2018). *Bats and artificial lighting in the UK Bats and the Built Environment series*. Guidance Note.
- Botanical Society of Britain and Ireland (BSBI) (2011). *Recording the British and Irish flora 2010-2020 Annex 1: Guidance on sampling approaches*.
- British Standards Institute (BSI) (2013). *BS 42020:2013 Biodiversity: Code of practice for planning and development*. BSI-Global, London.
- British Standards Institution (2021). *BS8683 - Process for designing and implementing Biodiversity Net Gain — Specification*. BSI-Global, London.
- CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environment Management, Winchester.
- CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute of Ecology and Environmental Management, Winchester. [Available online at: Advice-Note.pdf (cieem.net)].
- CIEEM (2022). *Code of Professional Conduct*. Chartered Institute of Ecology and Environmental Management, Winchester. [Available online at Code-of-Professional-Conduct-fEB-2022.pdf (cieem.net)].
- CIRIA (2001). *CIRIA Control of water pollution from construction sites: Guidance for consultants and contractors*. CIRIA: London.
- Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London.
- Edgar, P., Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth
- Froglife (1999). *Advice Sheet 10: Reptile Survey – An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife, Peterborough.
- GTb (2023a). *Staplefield Bulk Excavation Method Statement*.
- GTb (2023b). *Staplefield Ducting Pipework Method Statement*.
- Harris, S. et al. (1989). *Surveying Badgers*. The Mammal Society, London.
- Joint Nature Conservation Committee (JNCC) (2008a). UK BAP Priority Habitat Descriptions (Hedgerows). [Online] Available at: <https://data.jncc.gov.uk/data/ca179c55-3e9d-4e95-abd9-4edb2347c3b6/UKBAP-BAPHabitats-17-Hedgerows.pdf> [Accessed 16 November 2023].
- JNCC (2008b). UK BAP Priority Habitat Descriptions (Wet Woodland). [Online] Available at: <https://data.jncc.gov.uk/data/2829ce47-1ca5-41e7-bc1a-871c1cc0b3ae/UKBAP-BAPHabitats-64-WetWoodland.pdf> [Accessed 16 November 2023].
- JNCC (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit (reprint)*. Joint Nature Conservation Committee, Peterborough.

JNCC (2011). UK BAP Priority Habitat Descriptions (Rivers). [Online] Available at: <https://data.jncc.gov.uk/data/01d6ab5b-6805-4c4c-8d84-16bfebe95d31/UKBAP-BAPHabitats-45-Rivers-2011.pdf> [Accessed 16 November 2023].

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001). *Great Crested Newt Conservation Handbook*. Froglife, Halesworth.

Mid Sussex District Council (2018). *Mid Sussex District Plan 2014 – 2031*. [Online] Available at: <https://www.midsussex.gov.uk/media/3406/mid-sussex-district-plan.pdf> [Accessed 16 November 2023].

Mid Sussex District Council (2023). *Mid Sussex District Plan 2021 – 2039. Consultation Draft (Regulation 19)*. [Online] Available at: <https://www.midsussex.gov.uk/media/bf5fb3ic/submission-draft-district-plan-regulation-19.pdf> [Accessed 14 December 2023].

Ministry of Housing, Communities & Local Government (2021). *National Planning Policy Framework*. Last updated 05 September 2023. [Online] Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [Accessed 16 November 2023].

Mott MacDonald (2022a). Staplefield Wastewater Treatment Works – Preliminary Ecological Appraisal; 639529-MM-N-RPT-0005.

Mott MacDonald (2022b). Staplefield Wastewater Treatment Works – Biodiversity Net Gain Assessment; 639529-MM-N-RPT-0007.

Mott MacDonald (2022c). Staplefield Wastewater Treatment Works – Bat Preliminary Roost Assessment and Emergence Survey Report; 639529-MM-N-RPT-0006.

Mott MacDonald (2022d). Staplefield Wastewater Treatment Works – Great Crested Newt Report; 639529-MM-N-RPT-0009.

Mott MacDonald (2022e). Staplefield Wastewater Treatment Works – Otter Survey Technical Note; 639529-MM-N-RPT-0010.

Mott MacDonald (2022f). Staplefield Wastewater Treatment Works – Hazel Dormouse Report; 639529-MM-N-RPT-0011.

Mott MacDonald (2023a). Staplefield Wastewater Treatment Works – Arboricultural Constraints Report; 639529-MM-N-RPT-0020.

Mott MacDonald (2023b). Staplefield Wastewater Treatment Works – Air Quality Assessment; 639529-MM-N-RPT-0026.

Mott MacDonald (2023c). Staplefield Wastewater Treatment Works – EIA Screening Opinion; 639529-MM-N-RPT-0014.

Multi-Agency Geographic Information for the Countryside (2023). [Online] Available at: <http://magic.defra.gov.uk/> [Accessed 03 January 2024].

Natural England (2023). *Priority River Habitat - Rivers (England)*. [Online] Available at: [Priority River Habitat - Rivers \(England\) | Priority River Habitat - Rivers \(England\) | Natural England Open Data Geoportal \(arcgis.com\)](https://open.data.gov.uk/dataset/natural-england/priority-river-habitat-rivers-england) [Accessed 03 January 2024].

Oldham R.S. *et al.* (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10(4), 143-155;

Scottish Badgers (2018). *Surveying for Badgers: Good Practice Guidelines*. Version 1.

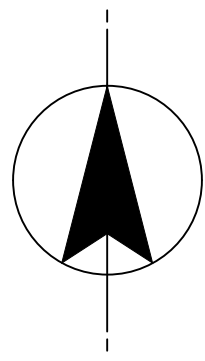
UK Habitat Classification Working Group (2018). *UK Habitat Classification User Manual*.

VESI Environmental (2023). *Draft Design Summary Staplefield Integrated Constructed Wetland (752214-SBN-ZZ-00-SP-W-00001)*.

Appendices

| | | |
|----|--------------------------------------|----|
| A. | Staplefield Landscape Plan | 36 |
| B. | Relevant Legislation and Policy | 38 |
| C. | Phase I Habitat to UKHab Translation | 45 |
| D. | UK Habitat Map | 46 |

A. Staplefield Landscape Plan



ACCESS TO FIELD



LANDSCAPING MANAGEMENT PLAN

A commissioning period is required to cover the initial plant establishment period this is the liability of the contractor after which any maintenance procedure liability will be that of the client.

All planting and maintenance shall be carried out as per 'Good Horticultural practice' and 'British Standard' with particular reference to:
 BS 3998: Recommendations for tree work
 BS 8545 Trees: from Nursery to independent in landscape
 BS 4428: Code of practice for general landscape operations
 BS 7370: Grounds maintenance

The time that trees and plants are held in temporary storage should be kept to a minimum. The storage area should be specific for that purpose.
 All plants will be of UK provenance.

PLANTING

GROUND PREPARATION

- Planting areas should be identified and marked out so that clearly designated areas in compliance with the approved planting plan are created.
- Ground preparation shall ensure sufficient topsoil is in place.
- Planting works shall be carried out during appropriate ground and weather conditions for works being undertaken.
- Following planting ensure watering and weed control is maintained

WETLAND PLANTING

- Wetland plants will be planted in a density of 6 plants/m².
- Plant species will be planted in similar species groups/clusters.
- Planting will be carried out manually.
- Suitable source of water for preparing cells for planting will be confirmed in advance.
- Soils to be saturated prior to planting with no greater than 100mm of water.
- Following planting water depths to be maintained at 50-100mm.
- Subject to time of year, water level management shall be reviewed weekly/monthly.
- For species list and number please refer to Table 1.

TREES AND HEDGES / SHRUBS

- Hedges / shrubs to be planted along fencing (see drawing for location) in 2 rows 450mm apart with plants spaced at staggered 450mm spacing.
- Mulch the whole surface of planting beds with bark mulch in accordance with the specification and suppliers' instructions.
- Tree locations as indicated on drawing and carried out to BS standards as listed above.
- Tree guards using biodegradable material to be included for protection.
- For species list and number please refer to Table 2, 3 and Table 4.

GRASS AND WILDFLOWER

- 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.
- The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roller, or by treading, to give good soil/seed contact.
- For species list please refer to Table 5 and Table 6.

MAINTENANCE REQUIREMENTS

WETLAND AREAS

- Water level management within the wetland cells for plant establishment.
- Water levels shall be kept optimal to allow for species establishment and efficiency of the ICW system (operational 150-200mm).
- Pulling back of vegetation from inlet and outlet pipe areas and dispose on embankments away from pipes.
- Monitoring and access points to be kept clear of vegetation.
- Overtime (15-20 yrs.) desludging and replanting.
- As required remove unwanted species, e.g. willow, under best practice.
- Ensure unwanted or invasive plant species do not establish in cells.

TREES

- Pruning shall be carried out as necessary to establish a well-balanced head relative to the natural form and shape of the species and purpose.
- Remove any dead, dying and damaged branches or growth obstructing pedestrian or vehicular routes.
- Tree support systems, ties and protective guards shall be checked regularly during establishment and adjusted where necessary. Any broken or missing items shall be replaced, and ties adjusted to allow growth and prevent rubbing of bark. Remove as soon as practical.
- Maintain a weed free area at the base of all trees.
- Watering of trees shall be carried out (if necessary) weekly, immediately following planting. Watering frequency shall be assessed subject to season and requirements.

HEDGEROW / SHRUB

- Planting to be maintained to encourage vigorous growth according to species habit
- Species planting blocks to be maintained to encourage substantial coverage and interlocking with adjacent species to avoid bare patches and discourage weed growth.
- Maintenance requirements including pruning shall be required to be tailored to the individual species. Remove any dead, dying and damaged growth or growth obstructing vehicular routes outside of bird breeding season (March to August inclusive).
- Check condition of guards and shelters and replace broken or missing items until such a time as they become redundant. Adjust if necessary to allow for growth and prevent damage to bark. Remove as soon as practical. Re-firm any plants that have been disturbed by adverse weather or interference.
- Maintain a weed free area at the base of all trees and hedges, with approved mulch.
- Hedge trimming/cutting is recommended once annually, on only one side of the hedge. This can be alternated from year to year.

GRASS AND WILDFLOWER AREAS

- Mow long grass areas on an annual basis in September-October and to a minimum height of 10cm. Removal of all arising which would be stacked in scrub areas with no ground flora as habitat piles. Remove litter, rubbish and other debris from areas prior to cutting.
- Exercise extreme care when working in close proximity to existing/new trees and prevent damage to stems/trunks.

REPLACEMENT OF DAMAGED / DEAD PLANTS

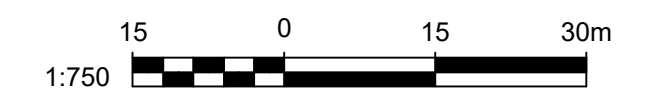
Routine inspection and management, as part of the operation and management of the site shall identify where 'any planting removed, dying or becoming seriously damaged or diseased within 5 years of planting shall be replaced within the first planting season thereafter with planting of similar size and species unless the local planning authority gives written consent for any variation'.

NOTES

- PLEASE REFER TO LANDSCAPE MANAGEMENT PLAN FOR FURTHER INFORMATION.
- THERE MIGHT BE SOME VARIATIONS OF THE WETLAND PLANTS NUMBER AND SIZES SUBJECT TO AVAILABILITY.
- DRAWING TO BE READ IN CONJUNCTION WITH ASSOCIATED DESIGN DOCUMENTS.

LEGEND

- OWNERSHIP BOUNDARY
- PLANNING APPLICATION BOUNDARY
- ELEVATION CONTOURS (0.5m INTERVALS)
- EXISTING FENCE
- EXISTING TREE / HEDGE
- RISING MAIN (TBC BY GTB)
- PIPEWORK
- STOCKPROOF FENCE
- PROPOSED MANHOLE
- NATIVE TREES
- NATIVE HEDGE / SHRUB
- WETLAND PLANTING
- GRASSED EMBANKMENTS
- EMBANKMENTS PLANTED WITH THE MIX OF 80% GRASSES AND 20% WILDFLOWERS
- FLOOD MITIGATION WETLAND PLANTING
- PROPOSED MAINTENANCE ACCESS ROAD (MINIMUM 3.5m WIDTH)
- PROPOSED VEHICULAR ACCESS



CURRENT VERSION INFORMATION

Initial Status or WIP
 XXXXXX.

| DATE | ORIG | CHKD | REVD | APPR | REV | STS | REASON FOR ISSUE |
|----------|------|------|------|------|-----|-----|---------------------------|
| 06/02/24 | JF | AC | AC | AC | C02 | A5 | SUITABLE FOR CONSTRUCTION |
| 29/01/24 | JF | AC | AC | AC | C01 | A5 | SUITABLE FOR CONSTRUCTION |
| 24/11/23 | JF | AC | AC | AC | P02 | S3 | REVIEW AND COMMENT |
| 19/10/23 | JF | AC | AC | AC | P01 | S3 | REVIEW AND COMMENT |

Table 1: Wetland planting - species and numbers

| Wetland Planting [12889m ²] | | % cover | Cell 1 [m ²] | Cell 2 [m ²] | Cell 3 [m ²] | Cell 4 [m ²] | F.M. Area [m ²] | Total plant number |
|---|----------------------|---------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|--------------------|
| Common name | Botanical name | | 487 | 5399 | 4418 | 2585 | 930 | |
| Emergent wetland plant species | | | | | | | | |
| Lesser pond sedge | Carex acutiformis | 25 | 731 | 8099 | 6627 | 3878 | 1395 | 20730 |
| Reed Sweet Grass | Glyceria maxima | 30 | 877 | 9718 | 7952 | 4653 | 1674 | 24874 |
| Lesser reedmace | Typha angustifolia | 20 | 584 | 6479 | 5302 | 3102 | 1116 | 16583 |
| Greater reedmace | Typha latifolia | 15 | 438 | 4859 | 3976 | 2327 | 837 | 12437 |
| Marginal wetland plant species | | | | | | | | |
| Yellow flag | Iris pseudacorus | 2 | 58 | 648 | 530 | 310 | 112 | 1658 |
| Water mint | Mentha aquatica | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Purple loosestrife | Lythrum salicaria | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Brooklime | Veronica beccabunga | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Gipsywort | Lycopus europaeus | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Marsh cinquefoil | Potentilla palustris | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Marsh marigold | Caltha palustris | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Meadowsweet | Filipendula ulmaria | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Water forget-me-not | Myosotis scorpioides | 1 | 29 | 324 | 265 | 155 | 56 | 829 |
| Total plant number / cell | | | 2920 | 32395 | 26507 | 15510 | 5582 | 82914 |

Table 2: Tree planting - species and numbers

| Common Name | Botanical name | Tree number | Size [trunk girth] |
|--------------------------|-------------------|-------------|--------------------|
| Birch | Betula pendula | 8 | 8-10cm |
| Rowan | Sorbus acupararia | 8 | 8-10cm |
| Field Maple | Acer campestre | 8 | 8-10cm |
| Total tree number | | 24 | |

Table 3: Hedgerow planting - species and numbers

| Hedgerow [180 m] | | | | |
|---------------------------|--------------------|---------|--------------|------------------|
| Common Name | Botanical name | % cover | Plant number | Size |
| Hawthorn | Crataegus monogyna | 60 | 432 | Height 60-80cm; |
| Blackthorn | Prunus spinosa | 25 | 180 | Winter planting; |
| Field Maple | Acer campestre | 5 | 36 | bare root stock; |
| Dogwood | Cornus sanguinea | 5 | 36 | April-September |
| Dogrose | Rosa canina | 5 | 36 | planting; root |
| Total plant number | | | 100 | 720 |

Table 4: Shrubs planting - species and numbers

| Common Name | Botanical name | Plant number | Size |
|---------------------------|--------------------|--------------|----------------------|
| Hawthorn | Crataegus monogyna | 5 | Height 60-80cm; |
| Blackthorn | Prunus spinosa | 5 | Winter planting; |
| Field Maple | Acer campestre | 5 | bare root stock; |
| Dogwood | Cornus sanguinea | 5 | April-September |
| Dogrose | Rosa canina | 5 | planting; root |
| Total plant number | | 25 | trainer stock |

Table 5: Grass - species mix and cover

| Surrounding grass areas planting [11558 m ²] | % cover |
|--|---------|
| Crested Dogs Tail | 15% |
| Strong Creeping Red Fescue | 30% |
| Slender Creeping Red Fescue | 15% |
| Sheeps Fescue | 10% |
| Smooth Stalked Meadow Grass | 20% |
| White Clover | 10% |

Table 6: Grass and Wildflower [1550m²] - species mix and cover

| | % cover |
|---|---------|
| Grasses | |
| Crested Dogs Tail | 15% |
| Strong Creeping Red Fescue | 20% |
| Slender Creeping Red Fescue | 15% |
| Sheeps Fescue | 10% |
| Smooth Stalked Meadow Grass | 10% |
| White Clover | 10% |
| Wildflowers | |
| Yarrow | 0.90% |
| Greater Knapweed | 1.60% |
| Common Mouse-ear (annual species and may not persist in a mature grassland sward) | 0.50% |
| Rough Hawkbit | 0.80% |
| Oxeye Daisy | 1.60% |
| Birds Foot Trefoil | 1.40% |
| Cowslip | 0.80% |
| Yellow Rattle | 2.20% |
| Salad Burnet | 1.80% |
| Black Knapweed | 1.70% |
| Wild Carrot | 0.90% |
| Kidney Vetch (prefers chalk soils) | 1.30% |
| Horseshoe Vetch (prefers chalk soils) | 0.80% |
| Field Scabious | 1.70% |
| Vipers Bugloss | 1.20% |
| Devils Bit Scabious (prefers damp acidic soils) | 0.80% |

Southern Water
 Southern House
 Yeoman Road
 Worthing
 West Sussex
 BN13 3NX
 telephone (01903) 264444
 fax (01903) 691435

GTB
 JOINT VENTURE
 Galliford Try Infrastructure Limited
 and Binlives UK Limited
 Joint Venture,
 Lewes Road, Falmer,
 Brighton, East Sussex,
 BN1 9PY

MESI ENVIRONMENTAL
 SOLUTIONS BY NATURE
 integrating our water back into nature

PROJECT TITLE: **STAPLEFIELD WTW**

DRAWING TITLE: **LANDSCAPE PLAN**

| | | |
|---|-----------------------------|------------------------|
| SITE UNIT MNEMONIC: STPFIELD | SITE UNIT NO: 101464 | MASTER SIZE: A1 |
| PRN: 752214 | SCALE: 1:750 | STATUS: A5 |
| S.W. DRAWING NO: 752214-UAX-ZZ-DR-EN-00007 | REVISION: C02 | |

B. Relevant Legislation and Policy

B.1 Legislation

| Species | Summary of legislation |
|---|---|
| EPS Species: Bats (all species) GCN Otter Hazel dormouse | <p>Legislation</p> <p>All species listed here receive full protection under the Conservation of Habitats and Species Regulations 2017 (as amended) with additional, limited, protection under the Wildlife and Countryside Act 1981 (as amended) (the 1981 Act).</p> <p>In summary it is an offence to</p> <ul style="list-style-type: none"> ● Deliberately kill, injure and take from the wild; ● Deliberately takes or destroys the eggs of such a species; ● Damage or destroy breeding or resting places; ● Deliberately disturb such a species in a way that <ul style="list-style-type: none"> – Impairs their ability to survive, breed or reproduce, or to rear or nurture their young; or in the case of animals of a hibernating or migratory species, to hibernate or migrate – Affects significantly the local distribution or abundance of the species to which they belong. <p>Or to: Intentionally or recklessly:</p> <ul style="list-style-type: none"> ● Disturb such a species while it is occupying a structure or place used for shelter or protection. ● Obstruct access to any structure or place used for shelter or protection by that species. <p>Seven species of bats, dormouse, great crested newt and otter are also listed on Section 41 of the NERC Act 2006. Section 40 of the Act places a duty to conserve biodiversity on public authorities in England. It requires local authorities and government departments to have regard to the purposes of conserving biodiversity in a manner that is consistent with the exercise of their normal functions such as policy and decision-making. 'Conserving biodiversity' may include enhancing, restoring, or protecting a population or a habitat.</p> |
| Widespread reptiles: (common lizard, slow worm, grass snake) | <p>Legislation</p> <p>All widespread reptiles are afforded partial protection under Schedule 5 of the 1981 Act. It is offence to intentionally kill or injure any of these species.</p> <p>All widespread reptiles are also listed on S41 of the NERC Act 2006. Section 40 of the Act places a duty to conserve biodiversity on public authorities in England. It requires local authorities and government departments to have regard to the purposes of conserving biodiversity in a manner that is consistent with the exercise of their normal functions such as policy and decision-making. 'Conserving biodiversity' may include enhancing, restoring or protecting a population or a habitat.</p> |
| Wild birds, their nests and eggs | <p>Legislation</p> <p>All wild birds are protected under the 1981 Act. In summary it is an offence to:</p> <ul style="list-style-type: none"> ● Kill, injure or take any wild bird. ● Take, damage or destroy the nest of any wild bird while it is being built or in use. ● Take or destroy the eggs of any wild bird. <p>In addition to the above, it is also an offence for species listed on Schedule 1 of the 1981 Act to:</p> <ul style="list-style-type: none"> ● Disturb any wild bird whilst it is building a nest or is in, on or near a nest containing eggs or young. ● Disturb dependent young of such a bird. <p>A total of 49 bird species are listed on Section 41 of the NERC Act 2006. Under Section 40 of the NERC Act the Local Planning Authority must also have regard to the conservation of biodiversity when carrying out their normal functions and ensure the potential impacts on protected species and habitats from the proposed development have been fully assessed and appropriate mitigations proposed. This duty includes the need to prioritise the conservation of species listed on S41.</p> |

| Species | Summary of legislation |
|--|---|
| Badger <i>Meles meles</i> | <p>Legislation</p> <p>Badgers and their setts are protected under the Protection of Badgers Act 1992. In summary it is an offence to:</p> <ul style="list-style-type: none"> ● Kill, injure or take any wild badger. ● Damage a badger sett or any part of it. ● Destroy a badger sett. ● Obstruct access to, or any entrance of, a badger sett. ● Disturb a badger when it is occupying a badger sett. |
| Rivers Wet woodland Hedgerows Hedgehog <i>Erinaceus europaeus</i> , Common toad <i>Bufo bufo</i> | <p>Legislation</p> <p>All habitats and species as given here are listed on Section 41 of the NERC Act (2006). Section 40 of the Act places a duty to conserve biodiversity on public authorities in England. It requires local authorities and government departments to have regard to the purposes of conserving biodiversity in a manner that is consistent with the exercise of their normal functions such as policy and decision-making. 'Conserving biodiversity' may include enhancing, restoring or protecting a population or a habitat.</p> |

B.2 Policy

Adopted local biodiversity policies are outlined in Mid Sussex District Council within the existing District Plan (2014-2031). Policy DP38 'Biodiversity' within this document states that:

Biodiversity will be protected and enhanced by ensuring development:

- *Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and*
- *Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances)*

The new District Plan 2021 – 2039 is expected to replace the current adopted District Plan in Spring 2024. Policy DPN1: Biodiversity, Geodiversity and Nature Recovery provides an update to Policy DP38 above and states that:

Biodiversity and geodiversity will be protected because they are important natural capital assets and provide benefits as part of ecosystem services. Nature recovery will be supported and encouraged because it is important for delivering improvements to nature, ecological networks and green and blue infrastructure.

Proposed development likely to affect designated nature conservation sites, protected species, priority habitats and priority species must carry out habitat and species surveys at the earliest opportunity in order to inform the design and conserve important ecological assets as listed below from negative direct and indirect effects. These assessments will need to be submitted in an ecological impact assessment report.

B.2.1 Protecting Biodiversity

All development must ensure the protection, conservation and enhancement of biodiversity.

Direct and indirect damage and harm to existing important ecological assets will need to be avoided, including from recreational use. Such assets include:

- *Internationally designated Special Protection Areas, Special Areas of Conservation and Ramsar sites, and any formally proposed for designation.*
- *Nationally designated Sites of Special Scientific Interest.*
- *Locally designated Local Wildlife Sites and Local Nature Reserves.*
- *Protected landscapes including Areas of Outstanding Natural Beauty and National Parks.*
- *Irreplaceable habitats such as ancient woodland, ancient or veteran trees and lowland fen.*
- *Priority habitats and species.*

Other areas identified as being of nature conservation or geological interest, including wildlife corridors, areas identified for nature recovery, Biodiversity Opportunity Areas, and Nature Improvement Areas.

B.2.2 Biodiversity in New Developments

Development will need to demonstrate that the mitigation hierarchy set out in national policy has been applied. If significant harm to biodiversity cannot be avoided (by locating development on an alternative site with less harmful impacts or through design), then such harm will need to be mitigated. Where harm cannot be adequately mitigated, then as a last resort, such harm must be compensated for.

Biodiversity will be protected and enhanced by ensuring development:

- 4. Protects existing biodiversity by retaining features of interest, including connecting routes as part of wider ecological networks, and ensuring the appropriate long term management of those features.*
- 5. Takes appropriate measures to avoid and reduce disturbance to sensitive habitats and species and to support the recovery of Priority species populations.*
- 6. Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green and blue infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats to support nature recovery.*

Development must incorporate biodiversity features and such biodiversity features³ must include appropriate long-term management arrangements where relevant. The Council will provide further guidance on recommended standards for biodiversity features within developments.

B.2.3 Water

New development with a main river or ordinary watercourse within its boundaries or new development proposed adjacent to or near to a main river or ordinary watercourse, will need to retain, reinstate, or provide an undeveloped buffer zone on both sides of the watercourse. This buffer zone should be a minimum of 10 metres on both sides measured from the top of the bank.

³ Swift bricks integrated into new buildings are preferred, as these are suitable for multiple bird species. Other biodiversity features include bird boxes and roosts, dormouse boxes, bat boxes, bee bricks, insect or bug hotels, hedgehog highways, native wildflower planting with nectar- and pollen rich flowers, rain gardens, or adding water features including a pond where possible. When introducing measures involving nesting and roosting, developers should have regard to the habits of swifts and bats which nest and roost in colonies.

Development should take opportunities for river restoration as part of natural flood management and in particular proposed development with watercourses within or adjacent to the Site boundary should seek such opportunities.

B.2.4 Nature Recovery

Development will need to demonstrate that it minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience of biodiversity and nature.

Development will need to demonstrate that it promotes the restoration, management and expansion of priority habitats and irreplaceable habitats in the district.

Development will be expected to meet the objectives of the Local Nature Recovery Strategy and any local nature recovery network or strategy, taking opportunities to deliver ecological networks and green and blue infrastructure.

Areas identified as opportunities and priorities for nature recovery will be safeguarded from inappropriate development. Development will need to demonstrate that it will not harm or adversely affect an area or areas identified as opportunities and priorities for nature recovery

Policy DPN2: Biodiversity Net Gain is a new policy within the updated District Plan and states:

Development (as defined in the Environment Act 2021 or its secondary legislation or as amended by the government) will need to deliver a net gain in biodiversity which will contribute to the delivery of ecological networks, green and blue infrastructure and nature recovery.

Development will need to demonstrate through a Biodiversity Gain Plan that measurable and meaningful net gains for biodiversity will be achieved and will be secured and managed appropriately. Clear and robust evidence must be provided to demonstrate that the biodiversity net gain is appropriate and high quality.

B.2.5 Principles of Biodiversity Net Gain

Development must demonstrate that good practice principles for biodiversity net gain have been followed.

Development must demonstrate that the mitigation hierarchy has been followed and the biodiversity net gain is in addition to this requirement.

Where there is evidence of deliberate or intentional neglect, removal, damage or degradation to any of the habitats and species on a site before an application, their deteriorated condition will not be taken into consideration and the ecological potential and/or previously recorded habitats of the Site will be used to decide the acceptability of any development proposals. The biodiversity baseline value will be what it is likely to have been had the neglect, removal, damage or degradation not occurred.

Biodiversity net gain, including off-site biodiversity net gain, will be expected to align with and meet the objectives and priorities of the Nature Recovery Network, Local Nature Recovery Strategy and other relevant local strategies, contributing and connecting to wider ecological networks and green and blue infrastructure. Consideration will need to be given to landscape character when developing proposals for biodiversity net gain.

It is expected that development proposals will enhance existing biodiversity and incorporate features to encourage biodiversity and pollination within and around the development.

Development must ensure that biodiversity net gain will be appropriately managed, maintained and funded for a minimum of 30 years after the completion of the development and this will

need to be demonstrated in a Habitat Management and Monitoring Plan. This will be secured through a planning condition and/or a planning obligation and will include a financial payment to cover the Council's cost associated with the long-term monitoring of the biodiversity net gain proposals.

B.2.6 Level of Biodiversity Net Gain

Biodiversity net gain will be calculated and assessed using the Government's published statutory biodiversity metric. The biodiversity net gain calculation and assessment will need to be completed by a suitably experienced and competent person, such as a qualified ecologist.

The biodiversity net gain calculation and assessment must be submitted in full and in an editable version with the application for development together with evidence that explains and supports the conclusions of the assessment.

The minimum percentage of biodiversity net gain required will be 10% as set out in legislation (or as amended by the government) or greater where it is required in another policy. The Council will encourage a higher level of biodiversity net gain and developments must seek to maximise opportunities, especially where development is located in or in proximity to areas identified for nature recovery, the Biodiversity Opportunity Areas, irreplaceable habitats or priority habitats.

A minimum percentage of biodiversity net gain of 20% will be required for Significant Sites and for the Significant Sites allocations in this Plan DPSC1 – DPSC3.

Opportunities to secure biodiversity net gain in exempted development will be supported.

B.2.7 Location of Biodiversity Net Gain

Biodiversity net gain should be provided on-site wherever possible. Off-site measures will only be considered where it can be demonstrated that, after following the mitigation hierarchy, all reasonable opportunities to achieve measurable net gains on-site have been exhausted or where greater ecologically meaningful gains can be delivered off-site where the improvements can be demonstrated to be deliverable and are consistent with the Local Nature Recovery Strategy and/or a local nature recovery network.

It is preferable that development proposing to use off-site biodiversity net gain selects locations within Mid Sussex District and ideally local to the proposed development.

B.2.8 Further guidance

The Council will publish further guidance on implementing and delivering biodiversity net gain on its website and development proposals will need to take this into account. This guidance will be reviewed periodically to ensure it reflects best practice, local priorities and opportunities.

Another relevant policy includes DPN4: Trees, Woodland and Hedgerows, which states:

Trees, woodland and hedgerows will be protected because they are valuable natural capital assets including for biodiversity, nature recovery, green infrastructure, health and wellbeing, and increasing resilience to the effects of climate change.

B.2.9 Protection of trees, woodland and hedgerows

The District Council will support the protection and enhancement of trees, woodland and hedgerows, and encourage new planting. As an irreplaceable habitat, ancient woodland and ancient or veteran trees and their soils will be protected. Where ancient wood pasture and historic parkland are identified, these areas will have the same consideration as other forms of ancient woodland.

Development (including construction and operational activities) that is adjacent to irreplaceable habitats including ancient woodland and ancient or veteran trees must incorporate appropriate buffers and/or root protection areas.

Development that will damage or lead to the loss of trees, woodland or hedgerows that contribute, either individually or as part of a group, to the visual amenity value or character of an area, and/or that have landscape, historic or wildlife importance, will not normally be permitted.

Development (including construction and operational activities) resulting in the direct or indirect deterioration, damage or loss of irreplaceable habitats including ancient woodland and ancient or veteran trees will not be permitted unless there are wholly exceptional reasons and in such circumstances, a suitable compensation strategy will be provided, including measures that respect the features and characteristics of the ancient woodland and ancient, aged or veteran trees.

The value of trees, woodland and hedgerows individually and cumulatively in providing connectivity and continuity across the landscape and a network for nature recovery will be taken into account so that habitat fragmentation, particularly of large and extensive woodland areas, is minimised.

B.2.10 New trees, woodland and hedgerows

Proposals for new trees, woodland and hedgerows must be of suitable species, usually native and from local or UK sourced stock, and where required for visual, noise or light screening purposes, trees, woodland and hedgerows must be of a size and species that will achieve this purpose.

Proposals for new woodland creation will need to follow best practice guidance and take into account a range of considerations including all of the following:

- *The biodiversity and amenity value of the existing habitat*
- *The landscape and its character*
- *Soil conditions*
- *Heritage and archaeology features*
- *Protected species*
- *Opportunities for natural regeneration*
- *Opportunities to connect to and extend existing woodland*
- *The long-term management arrangements for new woodland planting*
- *Resilience to the effects of pests, disease and climate change.*

B.2.11 Development and trees, woodland and hedgerows

Trees, woodland and hedgerows will be protected and enhanced by ensuring development:

1. *Retains and incorporates existing trees, woodland and hedgerows, including along the boundaries, into the design of new development and its landscape scheme.*
2. *Is orientated to have a positive edge to these features and the wider countryside.*
3. *Is designed to avoid the overshadowing of residential gardens which can lead to pressure for the removal of trees.*
4. *Prevents damage to root systems and takes account of expected future growth through respecting the root protection area.*
5. *Has appropriate protection measures throughout the development and construction process.*
6. *Secures appropriate long-term management and stewardship arrangements.*

7. *Where possible, incorporates retained trees, woodland and hedgerows within public open space rather than private space to safeguard their long-term management and stewardship.*
8. *Takes opportunities to plant new trees, woodland and hedgerows within the new development to enhance on-site green infrastructure and increase resilience to the effects of climate change.*
9. *Does not sever ecological corridors created by these assets and makes a positive contribution to the local nature recovery network and green infrastructure network.*

All development proposed within 15 metres of any trees, measured from the trunk, will be required to submit an Arboricultural Impact Assessment and Arboricultural Method Statement prepared by a qualified arboriculturist.

Developments should integrate street trees and other urban greening measures into new streets and open spaces, and tree-lined streets will be encouraged. Appropriate species must be selected ensuring tree roots have sufficient space to support healthy, long-lived trees. Appropriate long-term management and stewardship arrangements will need to be in place and secured by planning conditions and/or planning obligations.

B.2.12 Works to trees and hedgerows

Proposals for works to trees and/or hedgerows, including felling, will be considered taking into account all of the following:

- *The condition and health of the trees and/or hedgerows.*
- *The contribution of the trees and/or hedgerows to the character and visual amenity of the local area.*
- *The amenity, biodiversity and nature conservation value of the trees and/or hedgerows.*
- *The extent and impact of the works.*
- *Any replanting proposals.*

Inappropriate or excessive works to trees and/or hedgerows that will damage their health and/or amenity value and/or biodiversity value will be resisted.

Proposals for works to trees and/or hedgerows, including felling, may be refused if sufficient information is not provided to justify why works are necessary.

Proposals for works to trees or proposals affecting trees will need to be in accordance with the relevant British Standards. For example, BS 3998:2010 Tree work – Recommendations and BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (or as updated).

The felling of protected or established trees will only be permitted if there is no appropriate alternative. Where a protected or established tree or group of trees is felled, a replacement tree or group of trees, on a greater than 1:1 basis and of an appropriate size and type, will normally be required. The replanting should take place as close to the felled tree or trees as possible having regard to the proximity of adjacent properties. Replacement trees must be of suitable species, usually native and from local or UK sourced stock.

C. Phase I Habitat to UKHab Translation

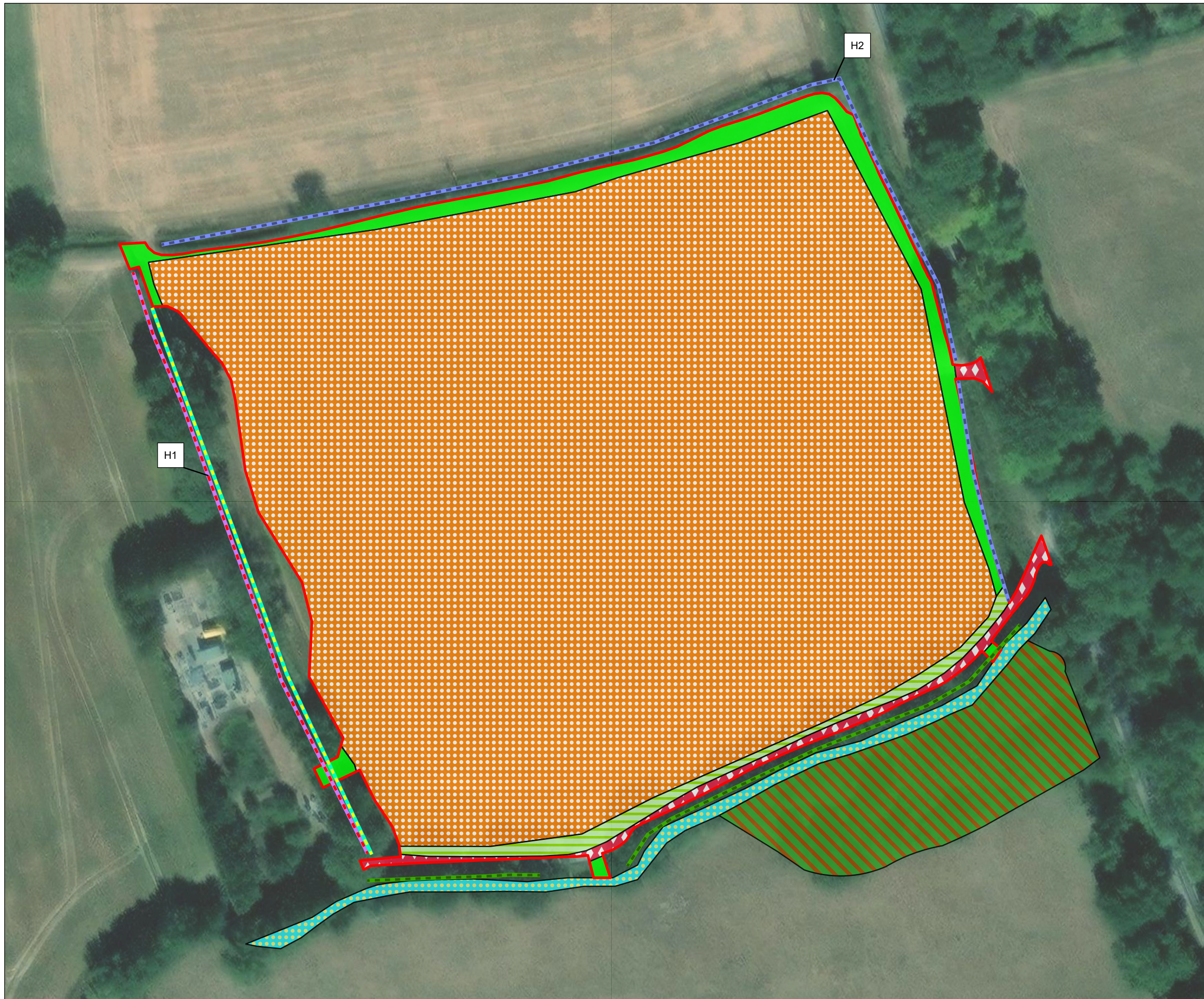
Since the time of the Phase I Habitat survey (October 2021), this methodology has ceased to be the principal technique for habitat surveys and UK Habitat (UKHab) Survey (UKHab Working Group, 2018) has now been widely adopted. Therefore, UKHab translation for the habitats are listed in Table C1.

Table C.1: Phase I to UKHab Translation

| Phase 1 Habitat type and code (from PEAR) | UK Habitat type and code |
|--|--|
| J5 Hardstanding and Other habitat | u1b6 Other developed land |
| B6 Poor semi-improved grassland | g4 Modified grassland |
| J1.1 Cultivated/disturbed land - arable | c1d Non-cereal crops |
| C3.1 Other tall herb and fern - ruderal | g3c, 17 Other neutral grassland, ruderal/ephemeral |
| G2 Running water | r2 Rivers and lakes |
| A3.1 Broadleaved scattered trees | w1g6 Line of trees |
| J2.3.2 - Hedge with trees - species-poor | h2b, 190 Other hedgerows with trees |
| J2.6 - Dry ditch | r, 191 - Ditch |
| A.1.1.1 Wet woodland | w1d Wet woodland |
| J2.1.2 - Intact hedge - species-poor | h2a Hedgerow |

Source: Mott MacDonald, 2023.

D. UK Habitat Map



- Site boundary
- h2a - Hedgerows
- h2b - Other hedgerows
- r1e, 191 - Ditch
- w1g6 - Line of trees
- c1d - Non-cereal crops
- g3c - Other neutral grassland
- g4 - Modified grassland
- r2 - Rivers and lakes
- u1b6 - Other developed land
- w1d - Wet woodland

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Site boundary: Southern Water 2023.UK habitat data: Mott MacDonald 2023. Basemap: Maxar, Microsoft, Contains OS data © Crown Copyright and database right 2023 Contains data from OS Zoomstack.

M **M**
MOTT **MACDONALD**

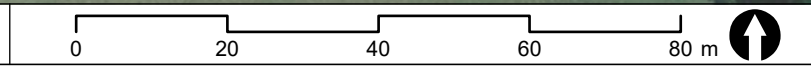
One Valpy
 20 Valpy Street
 Reading, RG1 1AR
 United Kingdom
 T +44 (0)118 902 7800
 W mottmac.com



**Staplefield Wastewater Treatment Works
 Ecological Impact Assessment:
 UK Habitat Map**

| | | | |
|---------------------------|--------------------------------|---------------------------|--------------------------------|
| Drawn M Hargest | GIS Checked K Lorenz | Checked B Ellis | Approved L Henderson |
| Scale at A3 1:1,000 | Status INF | Revision 01 | Security STD |

© Mott MacDonald 2024
 This document is issued for the party which commissioned it and for specific purposes connected with the captioned project only. It should not be relied upon by any other party or used for any other purpose.
 We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.



639529-MM-N-DWG-0017

