



# Staplefield Wetland Creation

Planning Statement

May 2024

This page left intentionally blank for pagination.

Mott MacDonald  
10 Fleet Place  
London EC4M 7RB  
United Kingdom

T +44 (0)20 7651 0300  
mottmac.com

# Staplefield Wetland Creation

## Planning Statement

May 2024

# Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	01/02/2024	H. Houlden S. Hulton-Harrop	J. Kaur	J. Knightsbridge	First draft for client review
B	07/02/2024	H. Houlden S. Hulton-Harrop	J. Kaur	J. Knightsbridge	Update following client comments
C	09/05/2024	S. Hulton-Harrop	J. Kaur	J Knightsbridge	Updated to provide further information

**Document reference:** 639529-MM-X-RPT-0001

**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

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Background	1
1.2	EIA screening	2
1.3	Pre-application advice	2
<b>2</b>	<b>Site Context</b>	<b>3</b>
2.1	Site location	3
2.2	Planning history	3
<b>3</b>	<b>Scheme Description</b>	<b>5</b>
3.1	Description	5
3.1.1	Lighting	5
3.2	Construction techniques	5
3.3	Programme	6
3.4	Permitted Development	6
<b>4</b>	<b>Planning Policy</b>	<b>7</b>
4.1	National Planning Policy Framework	7
4.2	West Sussex Waste Local Plan	8
<b>5</b>	<b>Planning Considerations</b>	<b>12</b>
5.1	Principle of Development	12
5.2	Flood Risk	13
5.3	Landscape and Visual Appearance	13
5.4	Ecology	13
5.4.1	Arboriculture	14
5.4.2	Biodiversity Net Gain (BNG)	14
5.5	Heritage	14
5.5.1	Historic Environment Desk Based Assessment	14
5.5.2	Archaeology	15
5.6	Transport	15
5.6.1	Past, present & proposed vehicle movements	15
5.6.2	Site access and hours	16
5.6.3	Site parking	16
5.7	Air Quality	16
5.8	Climate Change	16
5.9	Other Planning Considerations	17
5.9.1	Option Selection	17
5.9.2	Cost and Whole Life Carbon Implications	17

5.9.3	Using an Integrated Constructed Wetland	18
6	Conclusion	19
	Appendices	20
A.	Statement on Renewable Energy and Climate Change	21
<b>Tables</b>		
	Table 1.1: Planning application documents and drawings	1
	Table 2.1: Planning History	4
	Table 4.1: NPPF relevant policies	7
	Table 4.2: West Sussex Waste Local Plan relevant policies	8
<b>Figures</b>		
	<b>Figure 2.1: Site Location Plan</b>	3

# 1 Introduction

This Planning Statement has been prepared by Mott MacDonald Ltd on behalf of Southern Water, in support of a planning application seeking full planning permission for the creation of an Integrated Constructed Wetland (ICW) (the Scheme) on land adjoining Staplefield Wastewater Treatment Works (WTW), Cuckfield Road, Haywards Heath, RH17 6ES (the Site).

## 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 WTW meets the new permit requirement of 0.5mg/l total Phosphorus (TP) by 22 December 2024.

In line with Environment Agency (EA) policy, Southern Water is committed to improving the sustainability of its assets by reducing the use of hard infrastructure solutions at its WTWs. As such, an ICW is proposed to reduce total Phosphorous 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 to support the delivery of an ICW at Staplefield WTW. The design of the wetland has been completed by VESI Environmental.

This Planning Statement outlines the details of the Scheme and the context of the Site, with its key purpose being to outline how the Scheme accords, or otherwise, with national and local development plan policy and any other material considerations.

This planning application submission consists of the following documents and drawings:

Table 1.1: Planning application documents and drawings

Document/Drawing Title	Document/Drawing Reference
Application form and ownership certificates	Submitted via the Planning Portal.
Covering Letter	639529-MM-X-RPT-0002
Planning Statement	This document.
Air Quality Assessment	639529-MM-N-RPT-0026
Written Scheme of Investigation	240007-WSI
Construction Environmental Management Plan	639529-MM-N-RPT-0030
Ecological Impact Assessment	639529-MM-N-RPT-0024
Flood Risk Assessment	639529-MM-N-RPT-0029
Heritage Desk Based Assessment	639529-MM-N-RPT-0012
Statement on Renewable Energy and Climate Change	Appendix A of this document.
Landscape and Visual Impact Assessment	639529-MM-N-RPT-0027
Arboricultural Report	639529-MM-N-RPT-0021
Site Location Plan	752214-UAX-ZZ-ZZ-DR-EN-00001

Document/Drawing Title	Document/Drawing Reference
Site Plan	752214-MWX-ZZ-00-DR-C-00100
Landscape Plan	752214-UAX-ZZ-ZZ-DR-EN-00007
Cross Section Drawings	752214-UAX-ZZ-ZZ-DR-EN-00004

## 1.2 EIA screening

A request for an Environmental Impact Assessment (EIA) Screening Opinion was issued to West Sussex County Council (WSCC) on 28<sup>th</sup> April 2023. WSCC responded on 5<sup>th</sup> June 2023 confirming that the Scheme would not require an EIA.

## 1.3 Pre-application advice

Southern Water requested pre-application advice from WSCC as to whether the principle of development was acceptable on the Site. WSCC issued a written response on 24<sup>th</sup> July 2023 (reference: CP23001AS) explaining that subject to addressing key matters, in relation to WSCC's Waste Local Plan (WLP) policies W1 and W3, the development could be supported in principle. The response also confirmed the relevant requirements considered necessary to validate the application. All drawings and documents submitted in support of the application are outlined within **Table 1.1**.

The following information was also requested to be included within the application submission, which has been included within this Planning Statement:

- Statement on Renewable Energy and Climate Change
- Lighting details
- Transport Statement



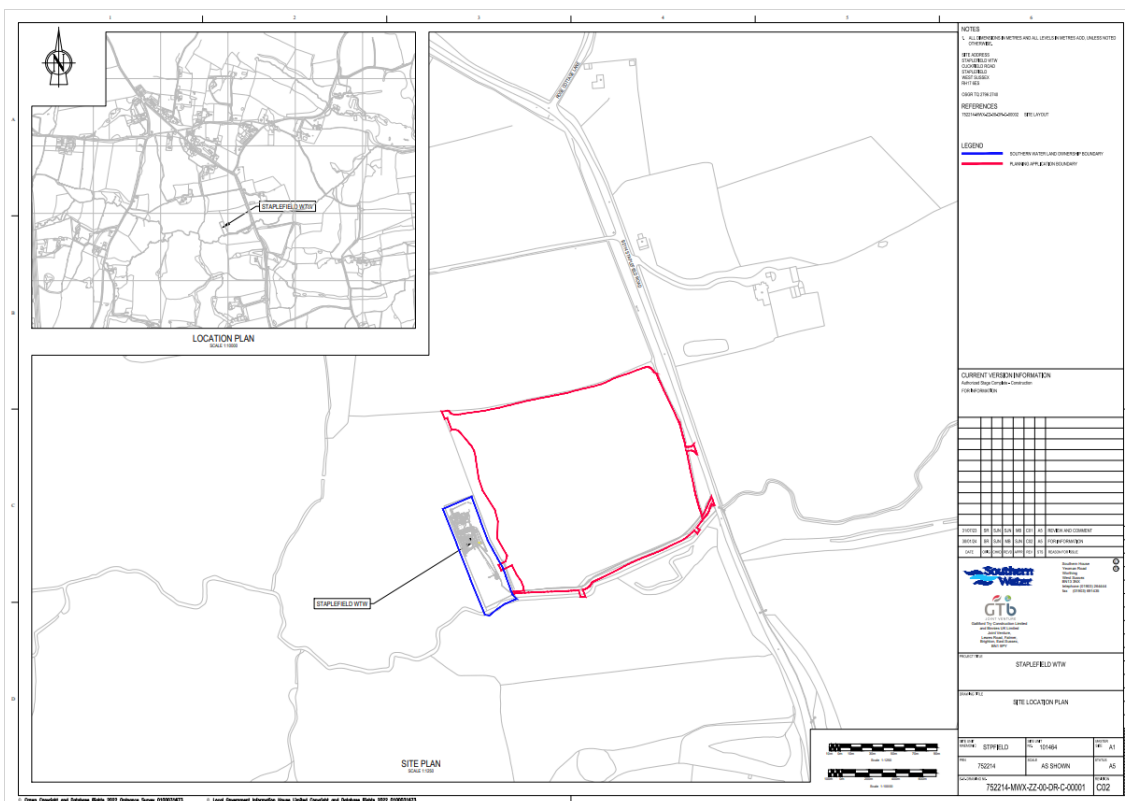
## 2 Site Context

### 2.1 Site location

Staplefield WTW is situated adjacent to the River Ouse, approximately 500m the south of the village of Staplefield in West Sussex, RH17 6ES. The Site Location is shown in Figure 2.1, as well as included within the application (752214-MWX-ZZ-00DR-C-00001). The grid reference of the centre of the current WTW is TQ 27959 27401. 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 farmland under private ownership, this will become Southern Water’s operational land once acquisition is complete. 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 north west of the WTW respectively.

**Figure 2.1: Site Location Plan**



### 2.2 Planning history

A review of the planning history of the Site has been undertaken using the Mid-Sussex District Council and WSCC’s public access system on 26 January 2024. This review found two relevant applications, including the EIA Screening Opinion referenced in Section 1.2 and an application for a construction of a Motor Control Centre kiosk within the existing WTW. No other relevant

applications were found, and it is not considered that any existing applications or permissions will be affected by the Scheme. The results of the planning history search are detailed within **Table 2.1**.

Table 2.1: Planning History

<b>Application Reference</b>	<b>Application Validated</b>	<b>Application Address</b>	<b>Description of Development</b>	<b>Application Status</b>
DM/23/1492	28/04/2023	Staplefield Wastewater Treatment Works Cuckfield Road Staplefield West Sussex	Integrated Constructed Wetland (ICW) and associated ancillary infrastructure.	EIA not required. 05/06/2023
WSSC/031/11/CD	15/06/2011	Staplefield Wastewater Treatment Works, Cuckfield Road, Staplefield, Haywards Heath, RH17 6ES	Construction of a Motor Control Centre (MCC) kiosk	Application Approved 16/09/2011

## 3 Scheme Description

### 3.1 Description

The design of Staplefield ICW has been completed by VESI Environmental. The ICW has been designed 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 wetland cells before connecting back to the existing final effluent chamber before discharge via the existing outfall to the River Ouse. The design of the Integrated Constructed Wetland is shown on the Site Plan (752214-MWX-ZZ-00DR-C-00100).

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 and achieve the 0.5mg/l TP permit.

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.

#### 3.1.1 Lighting

The works associated with the Scheme will incorporate the following additional external lighting requirements:

External Passive Infrared (PIR) task light on MCC kiosk – located above the door to the new MCC kiosk. The location of the new MCC kiosk is shown on the Proposed Site Plan (752214-MWX-ZZ-00-DR-C-001). The light will be directed to ground level immediately around the vicinity of the MCC kiosk door only. It is considered that there would not be any off-site impact.

Portable task lighting for all other external areas – one unit to be stored in the existing works building and for out-of-the-ordinary operational activities. It will be directed at the work in hand, and it is considered that there would not be any off-site impact.

### 3.2 Construction techniques

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

The total cell area of the wetlands is 12,862m<sup>2</sup> (equivalent to 1.29 hectares). The cells are shown on the Site Plan (752214-MWX-ZZ-00-DR-C-001). The area of each wetland cell is as follows:

Cell 1 = 487m<sup>2</sup>

Cell 2 = 5,399m<sup>2</sup>

Cell 3 = 4,387m<sup>2</sup>

Cell 4 = 2,589m<sup>2</sup>

A cut and fill balance has been calculated for the wetland area. The deepest excavation required to facilitate the construction of the Scheme 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. It has been agreed with the EA that a bespoke Environmental Permit for Flood Risk Activities will be sought in relation to flood risk activities following the submission of this planning application.

### 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.

The permit will state that Southern Water will have an Operation Technical Agreement for a 3 year period, reviewed every year by the EA. A period of wetland establishment is expected for several months. The Scheme will pass the full flow to the wetland straight away, therefore complying with the requirement for full flow. However, it is not expected that the wetland will reach 0.5mgP/l until several months after construction.

### 3.4 Permitted Development

The provision of the construction compound, as shown on the Site Plan (752214-MWX-ZZ-00-DR-C-001), will be carried out under permitted development rights afforded by Schedule 2, Part 4, Class A of the Town and Country Planning (General Permitted Development) (England) Order 2015.

# 4 Planning Policy

## 4.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) (amended December 2023) sets out the government’s planning policies for England and how these are expected to be applied. **Table 4.1** outlines the relevant policies of the NPPF.

Table 4.1: NPPF relevant policies

Chapter	Paragraph	Relevant description
2: Achieving Sustainable Development	8	<p>Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):</p> <ul style="list-style-type: none"> <li>● <b>an economic objective</b> – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure</li> <li>● <b>a social objective</b> – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities’ health, social and cultural well-being; and</li> <li>● <b>an environmental objective</b> – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.</li> </ul>
	11	<p>Plans and decisions should apply a presumption in favour of sustainable development.</p> <p>For <b>decision-taking</b> this means:</p> <ul style="list-style-type: none"> <li>● Approving development proposals that accord with an up-to-date development plan without delay</li> </ul>
3: Plan Making	20	<p>Strategic policies should set out an overall strategy for the pattern, scale and design quality of places, (to ensure outcomes support beauty and placemaking), and make sufficient provision for:</p> <ul style="list-style-type: none"> <li>● housing (including affordable housing), employment, retail, leisure and other commercial development;</li> <li>● infrastructure for transport, telecommunications, security, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat);</li> <li>● community facilities (such as health, education and cultural infrastructure); and</li> <li>● conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation.</li> </ul>
12: Achieving Well Designed Places	131	<p>The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement between applicants, communities, local planning authorities and other interests throughout the process.</p>

Chapter	Paragraph	Relevant description
15: Conserving and Enhancing the Natural Environment	180	Planning policies and decisions should contribute to and enhance the natural and local environment by: <ul style="list-style-type: none"> <li>• Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.</li> </ul>
	190	Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rest with the developer and/or landowner.

## 4.2 West Sussex Waste Local Plan

Section 38(6) of the Planning and Compulsory Purchase Act 2004 (as amended) requires that planning applications be determined in accordance with the development plan unless other material considerations indicate otherwise.

The West Sussex WLP (adopted April 2014) represents the relevant document within the development plan that the Scheme should comply with. **Table 4.2** outlines the relevant policies of the WLP.

Table 4.2: West Sussex Waste Local Plan relevant policies

Policy	Description
W3 – Location of Built Waste Management Facilities	<ul style="list-style-type: none"> <li>a. Proposals for built waste management facilities, on unallocated sites, to enable to transfer, recycling, and recovery of waste will be permitted provided that:                             <ul style="list-style-type: none"> <li>i. It can be demonstrated that they cannot be delivered on permitted sites for built waste management facilities or on the sites allocated for that purpose in Policy W10; and</li> <li>ii. They are located in the Areas of Search along the coast and in the north and east of the County as identified on the Key Diagram; or</li> <li>iii. Outside the Areas of Search identified on the Key Diagram, they are only small-scale facilities to serve a local need.</li> </ul> </li> <li>b. Proposals that accord with part (a) must:                             <ul style="list-style-type: none"> <li>i. Be located within built-up areas, or on suitable previously developed land outside built-up areas; or</li> <li>ii. Be located on a site in agricultural use where it involves the treatment of waste for reuse within that unit; or</li> <li>iii. Only be located on a greenfield site, if it can be demonstrated that no suitable alternative sites are available; and</li> <li>iv. Where transportation by rail or water is not practicable or viable, be well-related to the Lorry Route Network; large-scale facilities must have good access to the Strategic Lorry Route.</li> </ul> </li> <li>c. Proposals for new facilities within the boundaries of existing waste management sites to enable the transfer, recycling, and recovery of waste, will be permitted unless:                             <ul style="list-style-type: none"> <li>i. The current use is temporary and the site is unsuitable for continued waste use; or</li> <li>ii. Continued use of the site for waste management purposes would be unacceptable in terms of its impact on local communities and/or the environment.</li> </ul> </li> </ul>
W6 – Management of Wastewater and Sewage	<ul style="list-style-type: none"> <li>a. Proposals for the management of wastewater and sewage sludge will be permitted provided that:                             <ul style="list-style-type: none"> <li>i. Where possible, new facilities are accommodated within existing wastewater treatment sites; or</li> <li>ii. Where new facilities cannot be accommodated within existing sites, they are located on suitable previously developed land or on existing, permitted, or</li> </ul> </li> </ul>

Policy	Description
	<p>allocated sites for built waste management facilities or general industrial uses.</p> <p>b. Where location of the proposal in accordance with part (a) of this policy is not feasible in operational terms or is inappropriate for other reasons, proposals for the management of wastewater and sewage sludge will be permitted provided that:</p> <p>i. The proposal is necessary to support new development; or</p> <p>ii. It is required to meet environmental standards or regulatory provisions.</p>
<p>W11 – Character</p>	<p>Proposals for waste development will be permitted provided that they would not have an unacceptable impact on:</p> <p>a. The character, distinctiveness, and sense of place of the different areas of the County and that they reflect and, where possible, reinforce the character of the main natural character areas (including the retention of important features or characteristics); and</p> <p>b. The separate identity of settlements and distinctive character of towns and villages (including specific areas or neighbourhoods) and development would not lead to their actual or perceived coalescence.</p>
<p>W12 – High Quality Development</p>	<p>Proposals for waste development will be permitted provided that they are of high quality and, where appropriate, the scale, form, and design (including landscaping) take into account the need to:</p> <p>a. Integrate with and, where possible, enhance adjoining land-uses and minimise potential conflicts between land-uses and activities;</p> <p>b. Have regard to the local context including:</p> <p>i. The varied traditions and character of the different parts of West Sussex;</p> <p>ii. The characteristics of the site in terms of topography, and natural man-made features;</p> <p>iii. The topography, landscape, townscape, streetscape and skyline of the surrounding area;</p> <p>iv. Views into and out of the site; and</p> <p>v. The use of materials and building styles;</p> <p>c. Includes measures to maximise water efficiency;</p> <p>d. Include measures to minimise greenhouse gas emissions, to minimise the use of non-renewable energy, and to maximise the use of lower-carbon energy generation (including heat recovery and the recovery of energy from gas); and</p> <p>e. Include measures to ensure resilience and enable adaptation to a changing climate.</p>
<p>W13 – Protected Landscapes</p>	<p>a. Proposals for waste development within protected landscapes (the South Downs National Park, the Chichester Harbour Area of Outstanding Natural Beauty (AONB), and the High Weald AONB) will not be permitted unless:</p> <p>i. the site is allocated for that purpose in an adopted plan; or</p> <p>ii. the proposal is for a small-scale facility to meet local needs that can be accommodated without undermining the objectives of the designation; or</p> <p>iii. the proposal is for major waste development that accords with part (c) of this Policy.</p> <p>b. Proposals for waste development located outside protected landscapes will be permitted provided that they do not undermine the objectives of the designation.</p> <p>c. Proposals for major waste development within protected landscapes will not be permitted unless:</p> <p>i. there is an overriding need for the development within the designated area; and</p> <p>ii. the need cannot be met in some other way or met outside the designated area; and</p> <p>iii. any adverse impacts on the environment, landscape, and recreational opportunities can be satisfactorily mitigated.</p>

Policy	Description
W14 – Biodiversity and Geodiversity	<p>Proposals for waste development will be permitted provided that:</p> <ol style="list-style-type: none"> <li>a. areas or sites of international biodiversity importance are protected unless there are no appropriate alternative solutions and there are overriding reasons which outweigh the need to safeguard the value of sites or features, and provided that favourable conservation status is maintained;</li> <li>b. there are no adverse impacts on areas or sites of national biodiversity or geological conservation importance unless the benefits of the development clearly outweigh the impact on the objectives of the designation and on the wider network of such designated areas or sites;</li> <li>c. there are no adverse impacts on areas, sites or features of regional or local biodiversity or geological conservation importance unless the benefits of the development clearly outweigh the impact on the objectives of the designation;</li> <li>d. where development would result in the loss of or adversely affect an important area, site or feature, the harm is minimised, mitigated, or compensated for, including, where practicable, the provision of a new resource elsewhere which is of at least equivalent value;</li> <li>e. where appropriate, the creation, enhancement, and management of habitats, ecological networks, and ecosystem services is secured consistent with wider environmental objectives including Biodiversity Opportunity Areas and the South Downs Way Ahead Nature Improvement Area; and</li> <li>f. where necessary, the investigation, evaluation, and recording of important sites and features is undertaken and, where appropriate, representative features are preserved.</li> </ol>
W15 – Historic Environment	<p>Proposals for waste development will be permitted provided that:</p> <ol style="list-style-type: none"> <li>a. known features of historic or archaeological importance are conserved and, where possible, enhanced unless there are no alternative solutions and there are overriding reasons which outweigh the need to safeguard the value of sites or features;</li> <li>b. it would not adversely affect currently unknown heritage assets with significant archaeological interest; and where appropriate, the further investigation and recording of any heritage assets to be lost (in whole or in part) is undertaken and the results made publicly available.</li> </ol>
W16 – Air, Soil and Water	<p>Proposals for waste development will be permitted provided that:</p> <ol style="list-style-type: none"> <li>a. There are no unacceptable impacts on the intrinsic quality of, and where appropriate the quantity of, air, soil, and water resources (including ground, surface, transitional, and coastal waters);</li> <li>b. There are no unacceptable impacts on the management and protection of such resources, including any adverse impacts on Air Quality Management Areas and Source Protection Zones;</li> <li>c. The quality of rivers and other watercourses is protected and, where possible, enhanced (including within built-up areas); and</li> <li>d. They are not located in areas subject to land instability, unless problems can be satisfactorily resolved.</li> </ol>
W17 - Flooding	<p>a. Proposals for waste development will be permitted provided that:</p> <ol style="list-style-type: none"> <li>i. Mitigation measures are provided to an appropriate standard so that there would not be an increased risk of flooding on the site or elsewhere;</li> <li>ii. They are compatible with Shoreline Management Plans and/or Catchment Flood Management Plans and the integrity of functional floodplains is maintained;</li> <li>iii. Appropriate measures are used to manage surface water run-off including, where appropriate, the use of sustainable drainage systems (SUDS); and</li> <li>iv. They would not have an unacceptable impact on the integrity of sea, tidal, or fluvial flood defences, or impede access for future maintenance and improvements of such defences.</li> </ol>



Policy	Description
	<ul style="list-style-type: none"> <li>b. Proposals for waste development in 'areas at risk of flooding' will not be permitted unless they pass the Sequential Test and, where applicable, the Exception Test set out in national policy.</li> </ul>
W18 - Transport	<p>Proposals for waste development will be permitted provided that:</p> <ul style="list-style-type: none"> <li>a. Where practicable and viable, the proposal makes use of rail or water for the transportation of materials to and from the site;</li> <li>b. Transport links are adequate to serve the development or can be improved to an appropriate standard without an unacceptable impact on amenity, character, or the environment; and</li> <li>c. Where the need for road transport can be demonstrated:                             <ul style="list-style-type: none"> <li>i. Materials are capable of being transported using the Lorry Route Network with minimal use of local roads, unless special justification can be shown;</li> <li>ii. Vehicle movements associated with the development will not have an unacceptable impact on the capacity of the highway network;</li> <li>iii. There is safe and adequate means of access to the highway network and vehicle movements associated with the development will not have an adverse impact on the safety of all road users;</li> <li>iv. Satisfactory provision is made for vehicle turning and parking, manoeuvring, loading, and, where appropriate, wheel cleaning facilities; and</li> <li>v. Vehicle movements are minimised by the optimal use of the vehicle fleet.</li> </ul> </li> </ul>
W19 – Public Health and Amenity	<p>Proposals for waste development will be permitted provided that:</p> <ul style="list-style-type: none"> <li>a. Lighting, noise, dust, odours and other emissions, including those arising from traffic, are controlled to the extent that there will not be an unacceptable impact on public health and amenity;</li> <li>b. The routes and amenities of public rights of way are safeguarded, or where temporary or permanent re-routeing can be justified, replacement routes of comparable or enhanced amenity value are provided; and</li> <li>c. Where necessary, a site liaison group is established by the operator to address issues arising from the operation of a major waste management site or facility.</li> </ul>
W23 – Waste Management within Development	<p>Proposals for development will be permitted provided that:</p> <ul style="list-style-type: none"> <li>a. The waste generated during construction, demolition and excavation is minimised and that opportunities for re-using and recycling of waste are maximised; and</li> <li>b. Waste management facilities of an appropriate type and scale are an integral part of the development.</li> </ul>

## 5 Planning Considerations

### 5.1 Principle of Development

The additional land required for the Scheme is unallocated for waste use in the West Sussex Waste Local Plan and is outside the Area of Search, which is the broad geographic area in which West Sussex consider a waste management facility could be developed. However, part (a) of Policy W3 outlines that proposals for waste management facilities on unallocated sites will be permitted provided that it can be demonstrated they cannot be delivered on permitted or allocated sites and represent small-scale facilities. The Site is also located on agricultural greenfield land, and part (b) of Policy W3 states that proposals that accord with part (a) must only be located on a greenfield site if it can be demonstrated that no suitable alternative sites are available.

In these regards, there are no suitable alternative sites available for the Scheme, and it cannot be delivered on allocated sites or sites located within the Area of Search, given the location of the existing WTW. The Scheme is designed to improve water quality by reducing TP discharged into the River Ouse, as such it has to be located adjacent to the existing WTW. It is not possible to deliver the ICW on land contained within the existing WTW, therefore it is necessary for the Scheme to be located on the Site.

The existing WTW and proposed ICW represents a small-scale facility, which treats wastewater from Staplefield and the surrounding area, in line with Policy W3.

The Scheme is suitable for its location given its utilisation of sustainable and natural practices to reduce TP discharge. The proposed ICW and flood mitigation area will be planted with mixed native species. Consequently, the Scheme will not have a significant visual impact, despite being located on greenfield land. This contrasts with traditional hard infrastructure solutions to reduce TP.

Supporting text 6.4.12 of Policy W3 also outlines that “existing waste sites are suitable, in principle, for the intensification of existing uses”, and “there may also be instances where land adjoining existing waste sites could be satisfactorily incorporated as part of proposals”. It is considered that this Site is suitable for the intensification of use in this instance, given existing Site constraints and the need to reduce TP in line with Southern Water’s permit requirements.

Part (a) of Policy W6 of the WLP states that proposals for the management of wastewater will be permitted provided that new facilities are accommodated within existing WTWs, on permitted/allocated sites or on suitable previously developed land. However, part (b) outlines that where this is not possible for operational reasons, proposals will be permitted if they are required to meet environmental standards or regulatory targets. As outlined above, the Scheme is required to meet Southern Water’s permit requirements, and an ICW is proposed in line with the EA’s support for reducing the use of hard infrastructure solutions for improving wastewater treatment at WTWs. In this regard, the ICW has been designed to deliver a treatment system that will treat the incoming Phosphorus load to the consent level of 0.5mg/l and deliver a breadth of ancillary benefits to the area through carbon sequestration, ecological improvement and landscape engineering.

Paragraph 8 of the NPPF focusses on achieving sustainable development, the development of an ICW at Staplefield WTW demonstrates an environmental objective. The Scheme seeks to treat effluent to reduce the TP concentration and make effective use of the land adjacent to the WTW, providing significant improvement in biodiversity at the site and representing a low carbon solution to Phosphorous removal. The overall aim of the Scheme is to meet the new standards for TP, which will have a positive impact on water quality in the UK. Paragraph 11 of the NPPF outlines

that Local Planning Authorities should adopt a presumption in favour of sustainable development. In line with the definition given in paragraph 8, it is considered that the Scheme represents an environmentally sustainable solution to the 0.5mg/l TP permit.

In view of the information provided above, the principle of development on this Site is considered to be supported by national and local planning policy, including WLP policies W3, W6 and W23.

## 5.2 Flood Risk

A Flood Risk Assessment (639529-MM-N-RPT-0029) has been produced and submitted alongside this planning application.

The Scheme comprises the construction of a wetland area surrounded by a flood embankment and a flood mitigation area. In agreement with the EA, the ICW was deemed to be 'water compatible' land use according to Annex 3 Flood Vulnerability Classification<sup>1</sup> under water and sewage transmission infrastructure and pumping stations.

The Scheme is not predicted to change fluvial flood risk as it remains in the very low or negligible category for most of its length. New volume-for-volume compensation areas have been integrated to the design to offset floodplain volume lost.

## 5.3 Landscape and Visual Appearance

A Landscape and Visual Appraisal (639529-MM-N-RPT-0027) has been submitted as part of the planning application to assess the potential landscape and visual effects on the landscape as a resource in its own right.

The study concluded that landscape designations and visual receptors within 2km of the study area are not envisaged to face any long-term significant effects. The Scheme is of a small scale and changes to the topography are local. It is a medium sized field with a well-established hedgerow pattern and stands of trees that will limit the extent of the visibility of the Site.

Existing hedgerows and trees are to be retained, which will screen most views towards the Site with the exception of the closest representative viewpoints. However, even the closest receptors would benefit from the presence of the existing hedgerows.

The landscape layout of the Scheme will integrate with the surrounding area and topography. The proposed native shrubs and trees will enhance biodiversity and provide further screening relative to the existing arable land use. Emergent and marginal wetland plant species are to be planted. Birch, Rowan and Field Maple are the species of tree that are proposed to be planted on Site. Hawthorn, Blackthorn, Field Maple, Dogwood and Dogrose are all proposed to be planted as hedgerow and shrubs. Details of the proposed landscaping are shown on the Landscape Plan (752214-UAX-ZZ-ZZ-DR-EN-00007).

Overall, the Scheme will not have a significant impact on the surrounding landscape due to its scale and natural features, therefore complying with Policy W13 of the WLP, which seeks to safeguard protected landscapes. There are no protected landscapes affected by the Scheme.

## 5.4 Ecology

A Preliminary Ecological Appraisal (PEA) was undertaken in October 2021 and subsequently a Preliminary Ecological Appraisal Report (PEAR) was produced in January 2022. As part of this planning application, an Ecological Impact Assessment (EclA) (639529-MM-N-RPT-0024) has

---

<sup>1</sup> DEFRA (2012) Annex 3: Flood risk vulnerability classification to the National Policy Planning Framework. Accessed via <https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>

been produced to establish the ecological baseline of the Site, assess the Scheme's ecological impact and required mitigation.

Owing to the nature of the Scheme, habitats currently present on Site require removal to facilitate the creation of the ICW and associated facilities. However, the EclA provides recommendations for ecological mitigation. With this appropriate mitigation in place and higher-quality habitat creation following the construction of the ICW, there will be no significant adverse residual effects on habitats or species. In this regard, the Scheme is compliant with Policy W14 of the WLP.

Paragraph 180 of the NPPF states that planning decisions should contribute to and enhance the natural environment. The Scheme will have a positive impact on biodiversity. The embankments and wetland will be planted with mixed native species to provide increased foraging opportunities for local pollinators.

#### **5.4.1 Arboriculture**

An Arboricultural Report (639529-MM-N-RPT-0021), including an Arboricultural Impact Assessment and an Arboricultural Method Statement, has been produced and submitted in support of this planning application.

Desk surveys carried out on 13 November 2023 confirmed there are no Tree Preservation Orders, Conservation Areas, Ancient Woodland (including Ancient Semi Natural Woodlands and Plantations on Ancient Woodland), or ancient, veteran or notable trees present within or adjacent to the Site boundary.

The Arboricultural Impact Assessment identifies one tree group (G2), and sections of one tree group (G11) and one hedgerow (H2) as being in direct conflict with the Scheme design and will require removal to facilitate construction. G2 is in poor condition and should be removed for arboricultural reasons prior to construction commencing. Up to 6m of hedgerow at the northern end of H2 may require removal to facilitate widening of the access track between the wetland area and the temporary site compound in the adjacent field. Approximately 4m of G11 also requires removal to facilitate the installation of a pipeline from Cell 4 to the existing WTWs alongside construction of one new footpath between the ICW and the existing WTWs.

The Arboricultural Method Statement outlines the mitigation required during the construction stages of the Scheme to minimise or avoid impact on any retained trees.

#### **5.4.2 Biodiversity Net Gain (BNG)**

Southern Water has engaged with WSCC Officers in relation to Biodiversity Net Gain and carried out the necessary baseline habitat surveys and assessment of biodiversity units required. This has shown that while there is potential to allow some unit types to be provided onsite, it will not be possible to provide river units. Southern Water will continue to work with WSCC to ensure Biodiversity Net Gain is appropriately addressed for the Scheme.

The Scheme is predicted to achieve at least a 10% net gain in the area-based habitats and in the linear habitats within the Biodiversity Metric. To secure net gain in watercourse habitats, we are proactively engaging with a potential offsite provider and discussing two of their sites for river enhancements.

### **5.5 Heritage**

#### **5.5.1 Historic Environment Desk Based Assessment**

A Historic Environment Desk Based Assessment (DBA) (639529-MM-N-RPT-0012) (which included geophysical survey of the site) has been submitted in support of this planning application.

The DBA has been produced to assess the potential historic environment impacts during the construction of the Scheme.

The DBA outlines that the Site is situated within a predominately rural landscape surrounded by agricultural undeveloped fields. The River Ouse bounds the southern end of the Site. The DBA identifies 16 designated heritage assets (15 Grade II listed buildings and one conservation area) and 26 non-designated heritage assets within a 1km study area.

The creation of a new wetland environment will alter the agricultural setting of the designated Little Ashford and Bridge House Historic Farmstead, and non-designated Second World War features. The current setting contributes to the heritage significance of the assets. However, the Scheme will not diminish the ability to understand or appreciate these assets, as the setting will remain open, with ponds and reeds ensuring the retention of the countryside character of the area. There will be new features, such as a carpark introduced into the field for the maintenance and operation of the Scheme. The Scheme does not adversely affect any features of historic or archaeological importance, therefore complying with Policy W15 of the WLP.

### 5.5.2 Archaeology

The recommendations for archaeological works in two areas in advance of the site groundworks, arising from the DBA and in agreement with the WSCC Archaeologist have been accepted and written into a Written Scheme of investigation (WSI) (240007-WSI). All work will be carried out in accordance with this WSI, the relevant Chartered Institute for Archaeologists standards and guidance (CIfA 2023a-d) and the Sussex Archaeological Standards (WSCC, ESCC, CDC 2019), which outlines the methodology to be used in the field, and in reporting and archiving of the results. The WSI has previously been submitted to WSCC for approval prior to the commencement of work at the Site.

### 5.6 Transport

A Transport Assessment of the Scheme has been included within this section of the Planning Statement, including past, present and proposed vehicle movements, Site access and parking, and a discussion of potential areas of concern in relation to transport.

This information demonstrates that the Scheme will not have an impact upon transport movements following the completion of construction, and that during construction appropriate measure will be in place to ensure that the Scheme will not have an adverse impact upon the safety of users. In this regard, it is considered that the Scheme is compliant with Policy W18 of the WLP.

A Construction Environmental Management Plan (CEMP) has been prepared (639529-MM-N-RPT-0030) and details the construction of the proposed development, including the transportation of material and movement of trucks.

#### 5.6.1 Past, present & proposed vehicle movements

A summary of anticipated traffic movements during ICW construction are detailed below :

- Construction plant deliveries (Low loaders) – 5 to 7 trips per week, 14 return trips;
- Welfare and compound deliveries (8 wheelers) – 5 to 7 trips per week, 14 return trips;
- Fuel deliveries (6 wheelers) - 0 to 2 trips per week, 16 return trips;
- Waste collection (Vans and small lorries) - 0 to 2 trips per week, 16 return trips;
- Staff vehicles (Vans and cars) – 30 to 50 trips per week, 740 return trips;
- Generic material deliveries (8 wheelers) – 0 to 3 trips per week, 20 return trips;
- Materials for access track delivery (8 wheelers) - 8 to 10 trips per week, 30 return trips; and

- Earthworks fill material delivery (if spoil on site is deemed unusable for re-use and import is necessary), (8 wheelers) – 40 to 50 trips per week, 134 return trips.
- Traffic movements totalling to 984.

### 5.6.2 Site access and hours

The Site is located along B2114 Cuckfield road approximately 6 miles south of Crawley. The Site is accessed via a short gravel narrow access road linking from Cuckfield Road. The Site compound will be located in a field adjacent to the existing WTW. Vehicle access will be via the existing route from Cuckfield Road along the access road into the Site. The Site compound will be accessed via a new track, built around the perimeter of the field proposed for the wetlands works.

As the number of vehicles using the site access track off Cuckfield Road will increase, the contractor will liaise with the local authority's Highways team to ensure that construction warning signs are put in place to alert road users.

The Site is situated in a remote location, the closest property is situated to the southeast and is 300m distance from the works. No issues regarding disruption to residents are anticipated.

Site hours during construction will be from 07:30 to 18:00 weekdays; 09:00 to 13:00 Saturdays. Following this, site hours will return to Monday to Friday, from 07:30 to 17:00.

### 5.6.3 Site parking

Parking will be located within the Site compound and available for a limited number of construction personnel who will travel to the Site using cars/vans. There is sufficient space and suitable access for emergency vehicle access. Car parking will be organised to ensure that access for emergency vehicles is maintained at all times. No parking will be allowed on public roads, including the access road to the Site. No delivery vehicles will be permitted to wait outside of the Site, during non-working hours.

## 5.7 Air Quality

An Air Quality Assessment (639529-MM-N-RPT-0026) has been produced and submitted in support of this planning application.

The Air Quality Assessment outlines that MSDC has declared one Air Quality Management Area (AQMA) in its administrative area, designated for exceedances of the NO<sub>2</sub> annual mean objective. Mid Sussex AQMA No.1 was declared in 2012 and is approximately 23km south of the Scheme boundary. There are no other AQMAs relevant to the Scheme.

The Air Quality Assessment concludes the Scheme doesn't have any significant adverse impacts on air quality including on AQMAs, following the implementation of the appropriate mitigation measures outlined in Section 6 of the assessment. It is therefore considered to be compliant with Policy W16 and W19 of the WLP.

## 5.8 Climate Change

A Statement on Renewable Energy and Climate Change (Appendix A) has been produced in support of this planning application.

The Statement outlines the sustainability and climate considerations that led to the ICW being selected as the preferred option. It also outlines further considerations that have been included within the design to promote sustainability, including:

Achieving a cut-and-fill balance during earthworks. This greatly reduces the need to import material to create the wetland cells by using site-won material. This will reduce traffic movements and is expected to lower the carbon emissions associated with construction of the wetland.

Installation of one pump station with two pumps (duty/standby) each rated at 2.4kW. Operating the two pumps alternatively provides a reliable pumping system for wetland functionality whilst extending the life of pumps, conserving energy, and reducing maintenance costs. Flows will be pumped to Wetland Cell 1 and then subsequently flow via gravity through the series of wetlands cells during which natural processes of filtration and plant nutrient uptake will reduce the total Phosphorous concentration.

Plants are required to be imported to Site for wetland planting (emergent and marginal species) as well as trees, hedgerows, shrubs, grassland and wildflowers for Site stability, landscaping, and biodiversity including increasing habitat connectivity. All plants will be grown in the UK from UK provenance seed which ensures native species are selected for planting to support local wildlife.

In this regard, the Scheme is compliant with Policy W12 of the WLP, which states that proposals for waste development will be permitted provided that the design takes into account the need to include measures to ensure resilience and enable adaptation to a changing climate.

## 5.9 Other Planning Considerations

### 5.9.1 Option Selection

As per Policy W6 of the Waste Local Plan, it is required that wastewater treatment facilities are required to meet environmental standards and regulatory provisions. The construction of an ICW at Staplefield WTW will ensure that Southern Water meets proposed Phosphorus permits. Southern Water is required to ensure that Staplefield WTW meets the new permit requirement of 0.5mg/l total Phosphorus (TP) by 22 December 2024.

Southern Water determines the most suitable solution on a site-by-site basis to respond to the new regulatory permit, issued by the Environment Agency. The option selection process is based on a series of criteria. These include a comparative assessment of costs (construction and operational), delivery programme, constructability, carbon and other & environment/sustainability criteria, maintenance requirements and compliance risks. The comparison during the selection process has favoured the ICW as the most appropriate solution to enable compliance with the new Phosphorus permit, when considering the recommendations from our regulators to maximise the use of nature-based solutions where possible.

### 5.9.2 Cost and Whole Life Carbon Implications

Addition of Iron to remove Phosphorous is a standard method in Southern Water. This method can use the Iron from a chemical (conventional method) or from steel (electrocoagulation). The electrocoagulation method was tested by Southern Water several years ago and it found that it has a high energy demand and is therefore susceptible to energy cost fluctuation. Changing energy costs is a significant business risk and is not a sustainable option. The conventional chemical dosing method was assessed for Staplefield. The calculated Whole Life Cost (30 years) of the ICW is ~£1-2k higher than it would be for chemical dosing on site. This is not considered significant enough to outweigh the environmental benefits brought by this solution when compared to chemical dosing methods.

The Whole Life Carbon of the conventional options (chemical dosing with two different tertiary treatments) and of the ICW was also assessed. The carbon emissions for the two chemical solutions were assessed, one being double and the other 30% more than the emissions for the ICW solution over 30 years. This was a significant factor in the choice to use a wetland solution. Further to this through the option selection process, it should be recognised that Southern Water

must not only respond to the environmental permit, but also to the regulators demanding that where possible, Southern Water use a nature-based solutions.

### 5.9.3 Using an Integrated Constructed Wetland

The proposed ICW is linked to a regulatory output under the Water Industry National Environment Programme (WINEP). Southern Water is obligated to meet environmental requirements introduced by WINEP.

Southern Water considers an ICW to be the most environmentally sustainable way to ensure compliance with the new discharge consent for Phosphorus at Staplefield WTW. With regards to Whole Life Carbon, the ICW is significantly lower than other conventional electrocoagulation methods used for Phosphorous removal. The ICW, when compared with two other Phosphorous removal options shows significantly lower carbon emissions, with 121 and 308 tCO<sub>2</sub>-eq less than the ICW over 30 years (or 55% and 139% lower).

Standard Phosphorous removal methods require the use of ferric sulphate. These processes also require a second chemical to compensate for the loss of alkalinity. Using additional chemicals has significant operational costs, as well as greater environmental impact. Furthermore, at present, there is significant concern regarding the sustainable supply of this chemical for all water companies. It is anticipated that the global production of ferric sulphate is not sufficient to provide for demands and therefore new production sites will be required in the future. Southern Water has a duty to consider sustainability in all of its decision making.

Conventional Phosphorous removal schemes were assessed as part of the optioneering process. It was found that these alternatives would require significantly more extensive civil and mechanical engineering works (as it would also include an extensive tertiary treatment for solids separation), with significant pumping that would increase energy use and operational costs. The Wholelife cost of the conventional solution, compared to the same for the ICW, was less than £2,000. Over 30 years, this was considered not significant enough to discard the nature-based solution.

Southern Water's response to the new regulatory permit is determined on a case-by-case basis. A chosen solution for one site, is not necessarily feasible at another site. The option selection process is based on a series of criteria. These criteria include a comparative assessment of costs (both construction and operational), delivery programme, constructability, carbon and other environmental factors, maintenance requirements and compliance risks.

The comparison during the option selection process clearly favoured the ICW solution as being the most appropriate at Staplefield. The ICW will enhance the biodiversity, transforming an arable land into a new and unique biodiverse system. This solution will satisfy two requirements from our key regulators:

- ensure the site can meet the total Phosphorus discharge issued by the new Environment Agency (EA) regulations
- maximise the use of nature-based solutions, as formulated by DEFRA, OFWAT and the EA (respectively) "Wherever possible, we want to see nature-based solutions forming part of these upgrades", "We expect companies to adopt more nature-based solutions", "Companies to increase use of catchment and nature based solutions wherever possible".



## 6 Conclusion

This Planning Statement has been prepared by Mott MacDonald Ltd for the proposed creation of an ICW at Staplefield WTW. The Scheme is a treatment wetland, adjacent to the current WTW that will treat wastewater and reduce the TP concentration in the effluent ahead of its discharge into the River Ouse.

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 WTW meets the new permit requirement of 0.5mg/l total Phosphorus (TP) by 22 December 2024.

In line with EA guidance, Southern Water is committed to improving the sustainability of their assets by reducing the use of hard infrastructure solutions at their WTWs. As such, an ICW is proposed at Staplefield WTW to reduce TP concentrations to a level that would comply with the revised permit.

The purpose of the planning system is to achieve sustainable development. It is considered overall that the Scheme balances the three overarching objectives (economic, social and environmental) of the planning system. In particular, the Scheme offers additional environmental benefit in comparison to hard infrastructure solutions and will have a positive impact on biodiversity through the planting of mixed-native species in the wetland. This Planning Statement and supporting documentation also demonstrate that there are no significant impacts on the environment in terms of flood risk, visual amenity, ecology, noise and archaeology. Where impacts are likely, appropriate mitigation will be implemented into the Scheme. In this regard, the Scheme is in compliance with local and national planning policy, as set out in this Planning Statement.

For the reasons set out in this Planning Statement and the supporting application plans and documentation, it is considered that the principle of development is supported by policy and WSCC is requested to grant planning permission for the ICW at Staplefield WTW.

# Appendices

## **A. Statement on Renewable Energy and Climate Change**

# Staplefield Wetland Creation

## Statement on Renewable Energy and Climate Change

---

<b>Project:</b>	Staplefield Wetland Creation – Environmental and Planning Services		
<b>Our reference:</b>	100416906-011	<b>Your reference:</b>	prj_3774
<b>Prepared by:</b>	Hannah Simpson	<b>Date:</b>	4 December 2023
<b>Approved by:</b>	James Knightbridge	<b>Checked by:</b>	Timothy Ambler
<b>Subject:</b>	Statement on Renewable Energy and Climate Change		

---

### 1.1 Statement on Renewable Energy and Climate Change

Southern Water is committed to reaching net zero carbon emissions by 2030 as outlined in Southern Water's Net Zero Plan<sup>1</sup>. This means whole life carbon emissions from operations and embodied emissions within infrastructure would be nil. Targeting emissions from wastewater treatment processes and onsite fossil fuel use are included within the 2030 target. The commitments made by Southern Water in the plan include:

- “Buy 100% fully accredited renewable-backed power from our energy suppliers.
- Aim to generate 24% of our own renewable energy by 2025.
- Aim for nature-based solutions and work in partnership with other organisations<sup>1</sup>.”

Various options were considered by Southern Water to meet the revised permit conditions at Staplefield WwTW (0.5mg/l total phosphorus permit), including conventional treatment solutions. A natural and social capital assessment was completed on the short-listed options which involved consideration of carbon sequestration benefits. The total value of carbon sequestration benefits for the ICW solution was estimated to be of significant benefit and the wetland solution had the lowest whole life carbon cost compared to the other options. The other solutions did not offer a comparably positive natural or social capital benefits. This in part, led to the ICW being selected as the preferred option for Staplefield WwTW as well as the contribution towards Southern Water's net zero pledges.

In the UK, wastewater companies have used wetlands as an alternative to hard infrastructure solutions for wastewater treatment. As well as meeting wastewater discharge permit obligations, taking a nature-based approach to wastewater management contributes to the delivery of multiple national drivers and policies, including those in Defra's 25 Year Environment Plan<sup>2</sup>, Water UK's water industry Net Zero 2030 Routemap<sup>3</sup> and Defra's Biodiversity 2020 strategy<sup>4</sup>. Wetlands can be a low maintenance solution that can deal with variations in loading (hydraulic and nutrient) and climatic conditions and are particularly efficient at long term,

---

<sup>1</sup> Southern Water (n.d.) Out Net Zero Plan. Available online at: [https://www.southernwater.co.uk/media/4931/5585\\_net\\_zero\\_report\\_a4\\_v10.pdf](https://www.southernwater.co.uk/media/4931/5585_net_zero_report_a4_v10.pdf). Accessed: 01/12/2023.

<sup>2</sup> UK Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment. Available online at: <https://assets.publishing.service.gov.uk/media/5ab3a67840f0b65bb584297e/25-year-environment-plan.pdf>. Accessed: 16/11/2023.

<sup>3</sup> Water UK (2020) Net Zero 2030 Routemap. Available online at: <https://www.water.org.uk/news-views-publications/publications/net-zero-2030-routemap>. Accessed: 16/11/2023.

<sup>4</sup> Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available online at: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>. Accessed: 16/11/2023/

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.

sustainable reductions in total phosphorus concentrations. Additionally, wetlands can provide wider environmental benefits including biodiversity, carbon sequestration and landscape design compared to a traditional engineered solution.

The design philosophy of ICWs promotes the utilisation of a site in the most sustainable and natural way possible. Some of the key principles of ICW design are that the wetland should be unlined (or lined with site-won clays), consist of native and diverse emergent vegetation and that the infrastructure is integrated into the landscape with a view to enhancing the local biological diversity. These general principles have been applied to the design of the ICW at Staplefield WwTW.

Further considerations have been made during the design phase of Staplefield Wetland to promote sustainability and reduce environmental impact including:

- Achieving a cut-and-fill balance during earthworks. This greatly reduces the need to import material to create the wetland cells by using site-won material. This will reduce traffic movements and is expected to lower the carbon emissions associated with construction of the wetland.
- Installation of one pump station with two pumps (duty/standby) each rated at 2.4kW. Operating the two pumps alternatively provides a reliable pumping system for wetland functionality whilst extending the life of pumps, conserving energy, and reducing maintenance costs<sup>5</sup>. Flows will be pumped to Wetland Cell 1 and then subsequently flow via gravity through the series of wetlands cells during which natural processes of filtration and plant nutrient uptake will reduce the total phosphorous concentration.
- Plants are required to be imported to site for wetland planting (emergent and marginal species) as well as trees, hedgerows, shrubs, grassland and wildflowers for site stability, landscaping, and biodiversity including increasing habitat connectivity. All plants will be grown in the UK from UK provenance seed which ensures native species are selected for planting to support local wildlife.

Additionally, ICWs can have benefit in terms of carbon sequestration. Wetlands are an important element of carbon cycling as they can act as carbon sinks by storing carbon as plant biomass long-term. If well managed, wetlands can have a high carbon burial rate<sup>6</sup>. Creation of the wetland at Staplefield WwTW is expected to increase the carbon sequestration rate compared to the existing land use.

The wetland design includes a flood mitigation area to mitigate loss of floodplain storage from construction of the wetland. Allowance for climate change has been made during design including for flood modelling. The central value of climate change was used for the 1% AEP plus climate change scenario (equating to an allowance of 37% for the catchment). This ensures the flood mitigation area is resilient to increased rainfall associated with climate change by ensuring the capacity is sufficient for future storm events. There are therefore no significant changes in flood risk to third parties as a result of the creation of the wetland.

---

<sup>5</sup> Xylem Inc (2013) Duty-Standby Pumps Alternation. Available online at: <https://www.xylem.com/siteassets/brand/bell-amp-gossett/resources/manual/p2002379a.pdf>. Accessed: 16/11/2023.

<sup>6</sup> Natural England (2021) Carbon storage and sequestration by habitat: a review of the evidence (second edition) Natural England Research Report NERR094. Natural England, York. Available online at: <https://publications.naturalengland.org.uk/publication/5419124441481216>.

