LODDON GARDEN VILLAGE

Water Framework Directive Assessment

ENV-21960

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1 INTRODUCTION

1.1 Introduction

This Water Framework Directive (WFD) Assessment presents the baseline hydrological environment and potential development impacts from a WFD perspective for the Proposed Development named Loddon Garden Village.

Data has been collated through a detailed desktop study and survey of existing resources available for WFD waterbodies and subsequent water features to capture hydrological receptors, which may be affected by impacts from the Proposed Development.

The information from this WFD Screening and Scoping Assessment provides a baseline for the WFD waterbodies within the Study Area, and will be used to determine the likelihood of effects of the Proposed Development on WFD waterbodies.

The aim of the WFD Assessment is to assess the impacts of the proposed works associated with the Proposed Development against the WFD parameters for the local waterbodies. The assessment includes a summary of the current local conditions, the potential for the Proposed Development to contribute towards WFD objectives and any likely alterations to the WFD classifications that could arise from the Proposed Development.

The WFD assessment is required to demonstrate that the Proposed Development would not result in deterioration of the current quality status of the relevant WFD water body, and could provide improvements to the current status, in accordance with the objectives and measures set out in the Thames River Basin Management Plan (RBMP).

1.2 Proposed Location and Proposed Works

1.2.1 Project Location

The Site is centred at National Grid Reference SU 75048 68830 and its nearest postcode is RG2 9HX. The Site is irregular in shape and occupies an area of approximately 413 hectares (ha). The Site location is presented in Figure 1.

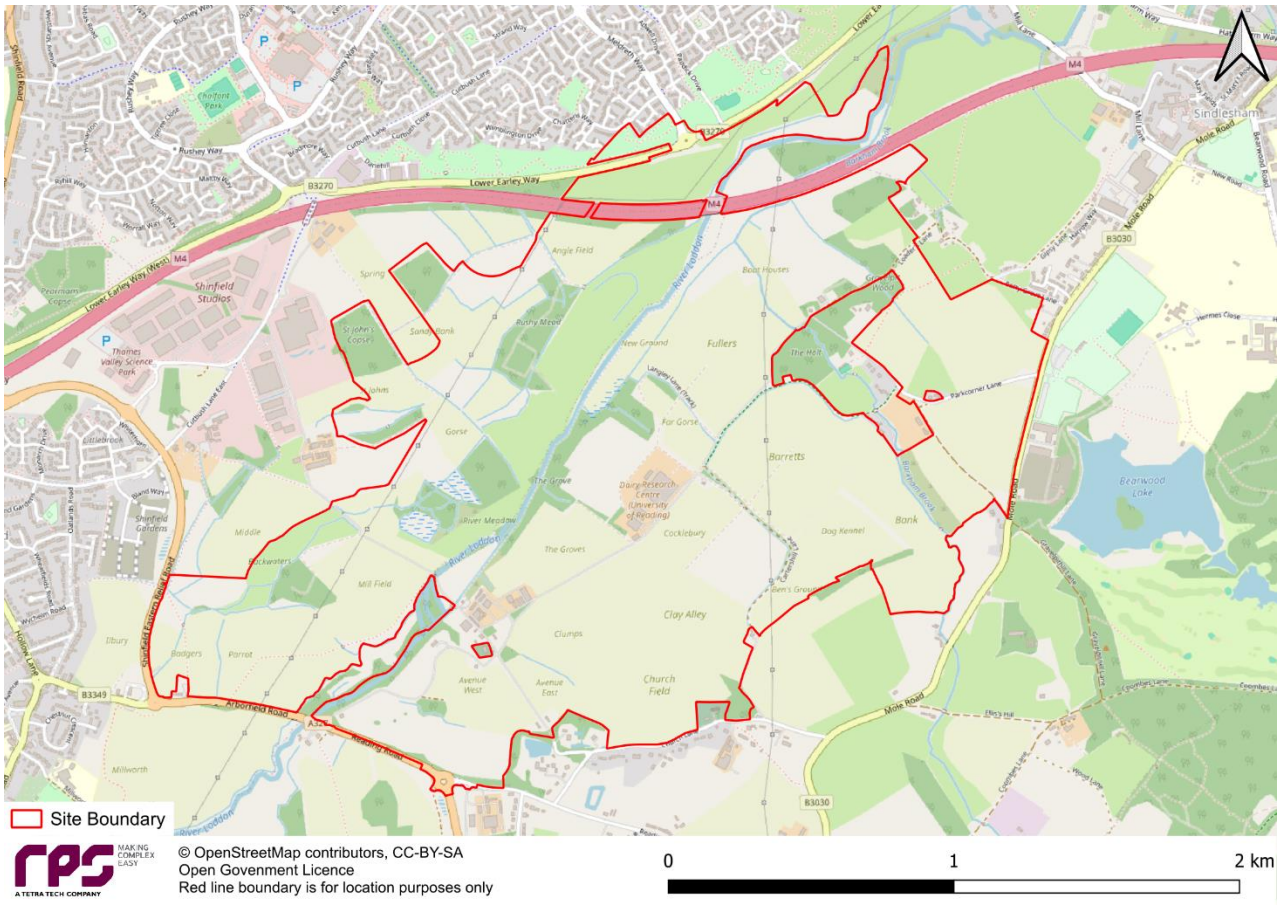

Figure 1 - Site Location

The Site comprises several University of Reading (UoR) owned research buildings and agricultural land, which is primarily used for cattle grazing. The Site also includes several areas of woodland, wetlands, as well as limited areas of hardstanding associated with farm buildings and the University of Reading's Dairy Research Centre. Additionally, a private road network provides access across the Site.

There are a number of water features located within the Site and within the 1 km study area. Notably, four main rivers run through the Site: the River Loddon, Barkham Brook and two unnamed tributaries of the River Loddon. There are also a number of springs, wetlands and surface water bodies located within the study area. The locations of these water features are presented in **Figure 2** and described in **Water Features Survey** prepared by RPS**.**

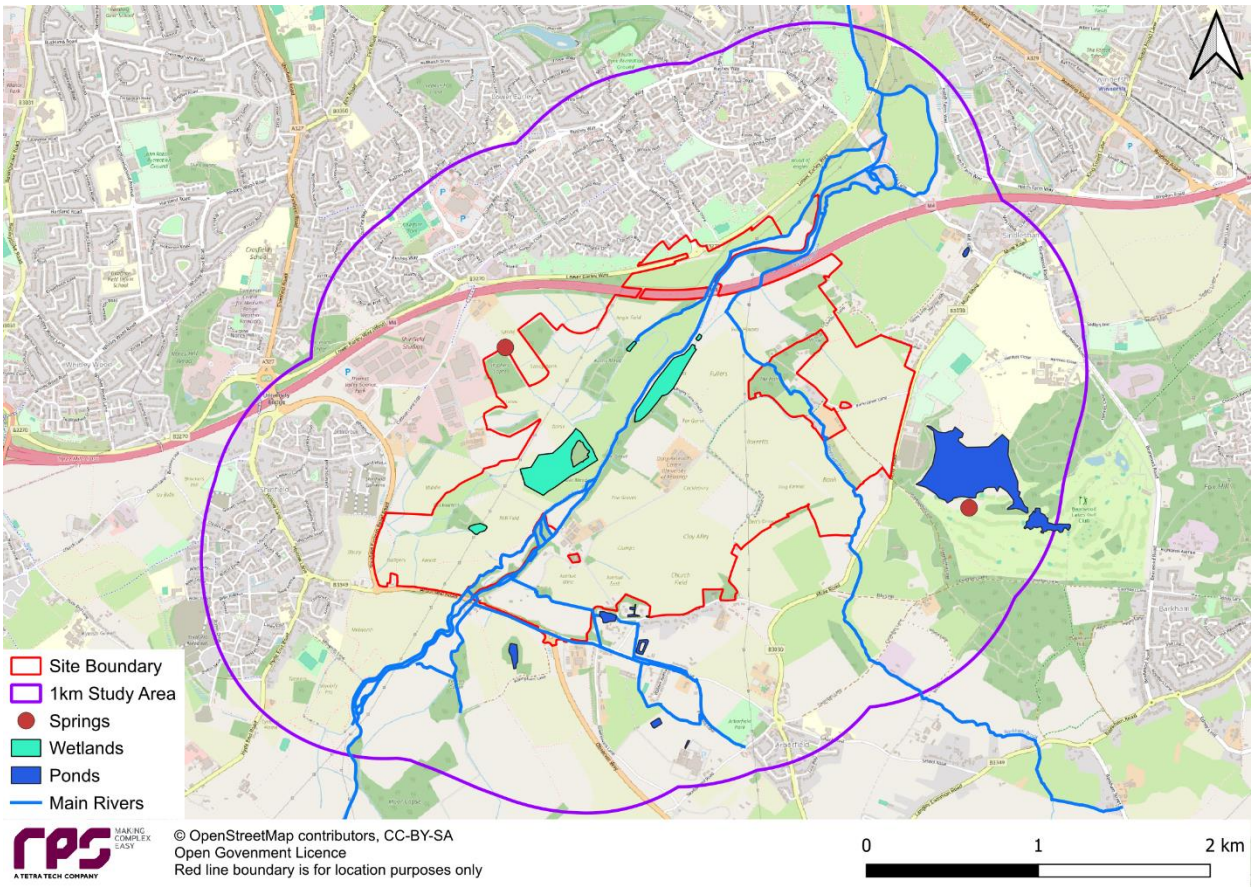

Figure 2 - Site Water Features

1.2.2 Proposed Development

The proposed works are for a mixed-use development, which is to be comprised of *"up-to 2,800 dwellings, employment space, two primary schools, a secondary school, a district centre, local centre, a country park, Suitable Alternative Natural Greenspace (SANG) and green infrastructure and associated strategic infrastructure including drainage and engineering works".*

1.3 Legislative Context

1.3.1 Water Framework Directive Legislation

The WFD (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000) is a European Union Directive which committed member states to achieve good qualitative and quantitative status of all water bodies by 2015. Under the Directive water bodies are defined as all ground and surface waters, including rivers, lakes, transitional waters, and coastal waters (up to one nautical mile from shore).

The regulations require that the impacts of a proposed development on biology, chemistry and hydromorphology are considered in relation to WFD status classes and are reported under a specific WFD section in any Environmental Statement or in a separate WFD compliance report (Environment Agency, 2010).

The WFD requires the prevention of deterioration and the protection enhancement, and restoration of all bodies of water. It was not possible to achieve good status of all water bodies by 2015 and therefore the outstanding water bodies have objectives set for 2021 or 2027.

The WFD is transposed into law in England and Wales by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (the 2017 Regulations).

Consideration of the WFD is required for development which have the potential to detrimentally impact the chemical and/or ecological status of a waterbody or to prevent improvements that may otherwise result in a waterbody meeting its WFD objectives.

The following objectives (derived from the Environmental Objectives of the Directive) are used to determine whether the Proposed Development, in and around the water environment, which is affected by the Proposed Development, comply with the overarching objectives of the WFD:

- Objective 1: To prevent deterioration in the ecological status of the water body;
- Objective 2: To prevent the introduction of impediments to the attainment of good WFD status for the water body;
- Objective 3: To ensure that the attainment of the WFD objectives for the water body are not compromised; and
- Objective 4: To ensure the achievement of the WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.

1.3.2 Study Area

The study area is presented within **Figure 3**, and takes into account the range of potential impacts arising from activities associated with the Proposed Development. The zone of influence is deemed appropriate by the impacts expected to arise from the Proposed Development. Based on the above, the study area is defined as:

- The area of land to be temporarily or permanently occupied during the construction and operation of the Proposed Development in addition to;
- A 1km buffer applied to the Site Boundary.

The development may interact with surface water bodies, therefore, it is vital that the potential impacts of the development on local waterbodies is assessed.

For the purpose of this WFD assessment, water bodies that are within, intersect or are hydrologically connected to the Study Area, have been identified and considered as relevant water bodies.

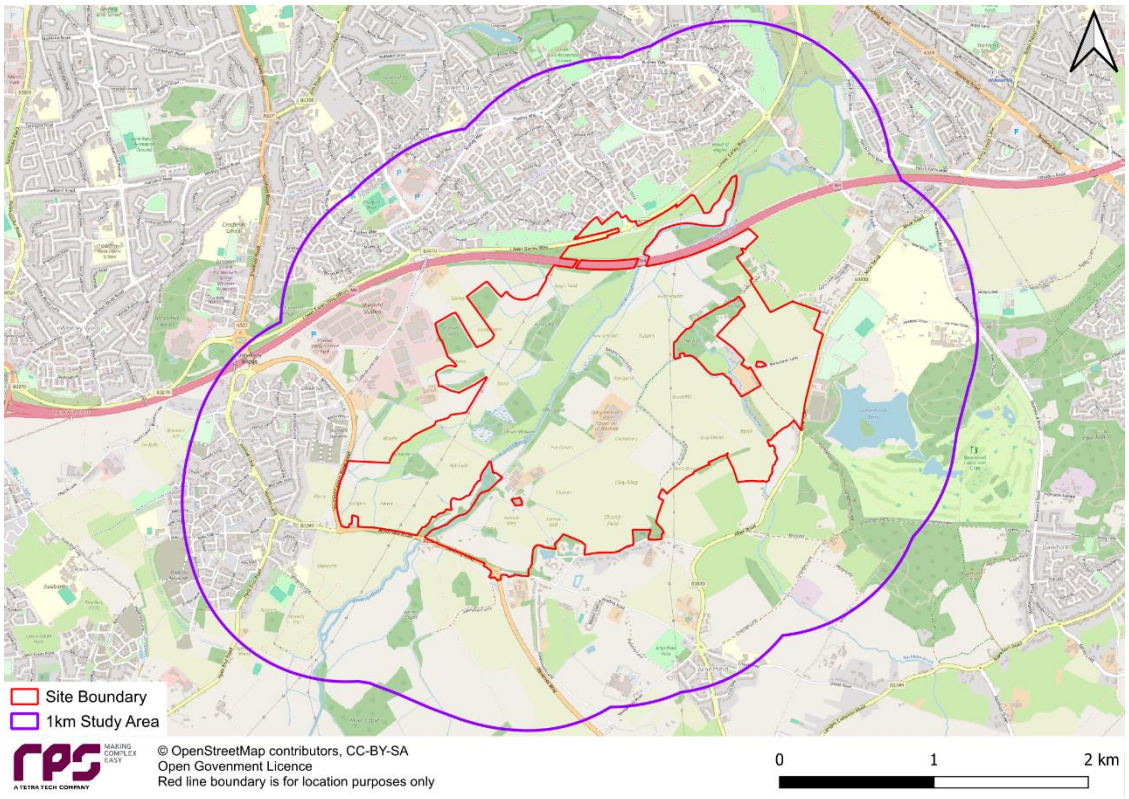

Figure 3 - Site Study Area

2 METHODOLOGY

2.1 Directive Assessment Methodology

2.1.1 Determination of Good Status

2.1.1.1 Surface Water

Good status is determined from the ecological and chemical status of surface waters. These statuses are assessed according to the following criteria:

- Biological quality (fish, benthic invertebrates, aquatic flora);
- Hydromorphological quality (e.g., riverbank structure, river continuity and substrate of the riverbed); and
- Physico-chemical quality (e.g., temperature, oxygenation, and nutrient conditions).

The chemical quality refers to environmental quality standards for river basin specific pollutants. These standards specify maximum concentrations for specific water pollutants. The WFD operates on a 'one out, all out' basis, so if one such concentration is exceeded, then the water body will not be classed as having a good status. The pure chemical status of surface waters is therefore classified as either good or fail with the physical-chemical quality indicators being classified as either high, good, moderate, poor, or bad.

The ecological status of surface waters is classified as being high, good, moderate, poor, or bad, whilst water bodies that have been modified (e.g., canals or contain significant flood defences) are classed as 'Heavily Modified Water bodies' (HMWB) and have to reach at least good potential by their objective year.

2.1.1.2 Groundwater

The WFD stipulates that groundwater must achieve good quantitative status and good chemical status by their objective year. Groundwater bodies are classified as either good or poor. The quantity status considers elements such as impacts of saline intrusion, ability to serve groundwater and surface water abstractions, and ability to support groundwater dependent terrestrial ecosystems. The chemical status refers to the environmental quality standards for river basin specific pollutants and the priority substances specified under the WFD.

2.1.1.3 River Basin Management Plans

The WFD introduced River Basin Districts (RBDs) to better manage watercourses without administrative and political boundaries. Each river basin is managed to achieve at least good status according to RBMPs, which provide a clear indication of how the objectives set for the river basin are to be reached within the required timescale.

2.2 Water Framework Directive Assessments

2.2.1 Assessment Guidance

Within a WFD assessment consideration must be shown if an activity will:

- Cause or contribute to deterioration of status; and / or
- Jeopardise the waterbody achieving good status in the future.

The assessment will follow the EA's guidance for completing WFD assessments (Environment Agency, 2023) and the Planning Inspectorate's Advice Note Eighteen (National Infrastructure Planning, 2024).

A three-stage process is recommended by the EA. The three stages are:

- **Stage 1 - WFD screening**. To determine if parts of the proposed development do not require further consideration, and provide a baseline summary.
- **Stage 2 - WFD scoping.** To identify risks of the proposed development's activities to receptors based on the baseline environment, and how embedded mitigation may limit impacts.
- **Stage 3 - WFD impact assessment.** A detailed assessment of water bodies and their quality elements that are likely to be affected by the proposed development, which have not been screened and scoped out.

A flow chart, taken from the Planning Inspectorate Advice Note 18 for assessing activities for compliance with the WFD (Planning Inspectorate, 2017) has been included below in **Figure 4**. This provides an overview of the recommended process to address the WFD considerations.

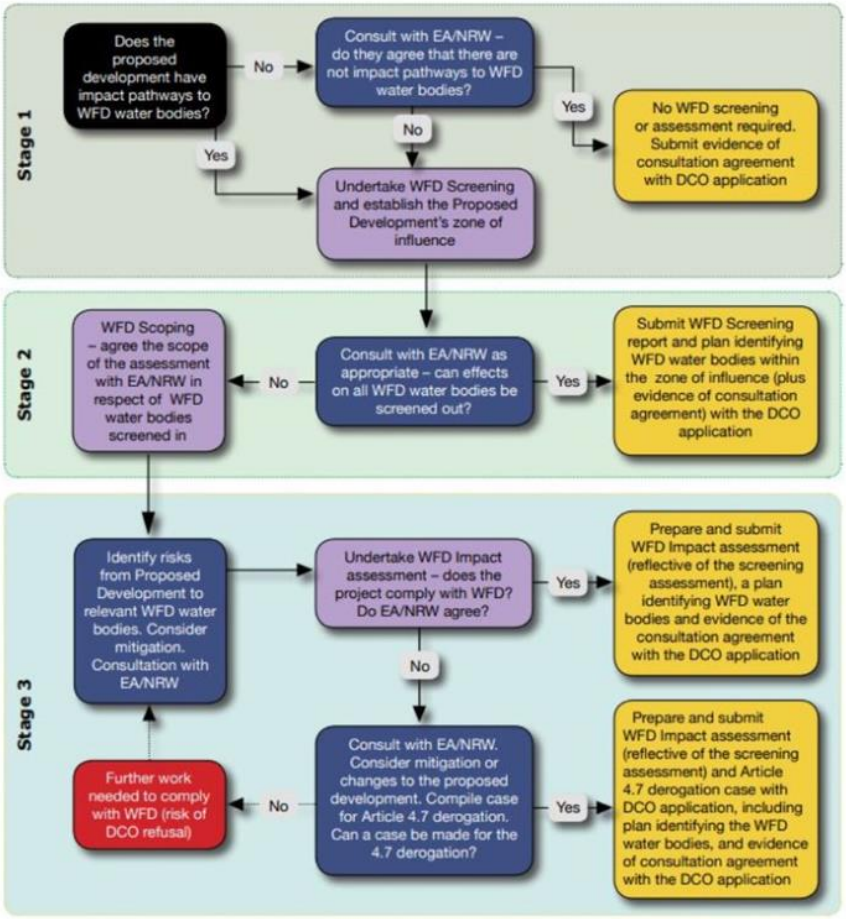

Figure 4. Flow chart illustrating the WFD compliance assessment process

2.2.2 Stage 1 - Screening Assessment

The screening assessment identifies the WFD water bodies within the vicinity of the Proposed Development. Each component of the Proposed Development has been reviewed in terms of its potential to impact to the water environment (i.e., on surface and groundwater bodies).

2.2.3 Stage 2 - Scoping Assessment

The WFD scoping assessment will identify links between the proposed onshore activities and each WFD quality element that could be affected. It is also necessary at this stage to consider the proposed activities and how they could affect the morphological mitigation measures for waterbodies, where applicable.

The scoping phase involves considering each WFD quality element to identify those (if any) where a possible causal link exists. That is, where water body status or environmental objectives could potentially be affected at a water body level by the proposed activities.

Each activity type is examined based on the maximum design scenario. Where potential impacts from proposed activities exist, they will be scoped into the assessment and mitigation measures highlighted for further development as design progresses.

2.2.4 Stage 3 – Detailed Impacts Assessment

The waterbodies and impacts which are screened and scoped in during Stages 1 and 2 are considered further for specific impacts that may occur as a result of the development. A detailed impact assessment will examine the potential residual impact on water bodies (including cumulative impacts), suggesting further mitigation measures and enhancements where appropriate.

Within the context of the wider Proposed Development, the WFD assessment will provide the opportunity to inform detailed design by avoiding, minimising, mitigating and compensating risks to WFD surface water and groundwater receptors where the risk assessment determined that the proposed activities may have potential impacts.

2.2.5 Data Sources

Information used in the preparation of the report is set out in **Table 1** below.

Table 1 - Information sources consulted during the preparation of the WFD Assessment

Title	Source	Author
BGS Geology Viewer	https://geologyviewer.bgs.ac.uk/?_ga=2.60345197.172764960.1660052920-1090504202.1660052920	British Geological Society (BGS)
Magic Map Application	https://magic.defra.gov.uk/MagicMap.aspx DEFRA	DEFRA
Catchment Data Explorer	https://environment.data.gov.uk/catchment-planning/	Environment Agency (EA)
Geoindex Onshore Mapping	https://www.bgs.ac.uk/map-viewers/geoindex-onshore/	BGS

Soilscapes viewer	http://www.landis.org.uk/soilscapes/	The National Soils Research Institute
Thames River Basin District River Basin Management Plan: Updated 2022	https://www.gov.uk/government/publications/thames-river-basin-management-plan-updated-2022-habitats-regulation-assessment	EA

2.2.6 Potential Impacts

A review of the proposed potential works and the potential impacts to the identified surface water and groundwater bodies has been undertaken by identifying the impacts that could improve or reduce the WFD status or affect the ability of the water bodies to meet the objectives of the WFD.

The following factors have been considered when determining whether the potential effects of the Proposed Development are likely to lead to an improvement / reduction in status or impact on objectives being met:

- Whether the impact is temporary (such as short-term construction impacts) or permanent/long term;
- The characteristics and sensitivity of the specific water features affected by the Proposed Development (which may be different to the designated WFD water body);
- The scale and importance of the specific water features affected by the Proposed Development to the designated WFD water body; and
- The nature, scale, and extent of potential impact in the context of the existing pressures and proposed measures for the water body.

2.2.7 Limitations of Assessment

The assessment has been undertaken using the design scenario (as of June 2025), in order to ensure the assessment captures the specific likely affects arising from the development. Should significant changes to the design occur, further assessment may be required.

2.2.8 Thames River Basin District

The RBMP system provides a catchment-based approach to managing water bodies, in accordance with the WFD.

The proposed development is located within the overarching Thames RBD, which covers 16,200 km^2. The Thames RBD comprises 20 management catchments, 85 surface water operational catchments and contains 548 water bodies.

In 2019, 100% of the districts surface water bodies were classified as fail for chemical status and 6% of the districts surface water bodies were assessed as being in good or better condition for ecological status.

In 2019, 62% of the districts ground water bodies were classified as poor for chemical status and 63% of the districts ground water bodies were assessed as having good quantitative status.

3 BASELINE CONDITIONS

3.1 Geology and Hydrogeology

The geology and hydrogeology of the site has been described in the Hydrogeological Conceptual Model. For the purposes of this WFD Assessment, it should be noted that whilst the site is underlain by Chalk, the major aquifer for southern and eastern England, it is covered by approximately 30 m of London Clay, which acts as an aquitard at the site. The superficial geology at the site includes deposits of Alluvium, Head, River Terrace Deposits – a Secondary A Aquifer, and Brickearth Formation – a Secondary (B) Aquifer. The superficial geology at the site is presented in **Figure 4.**

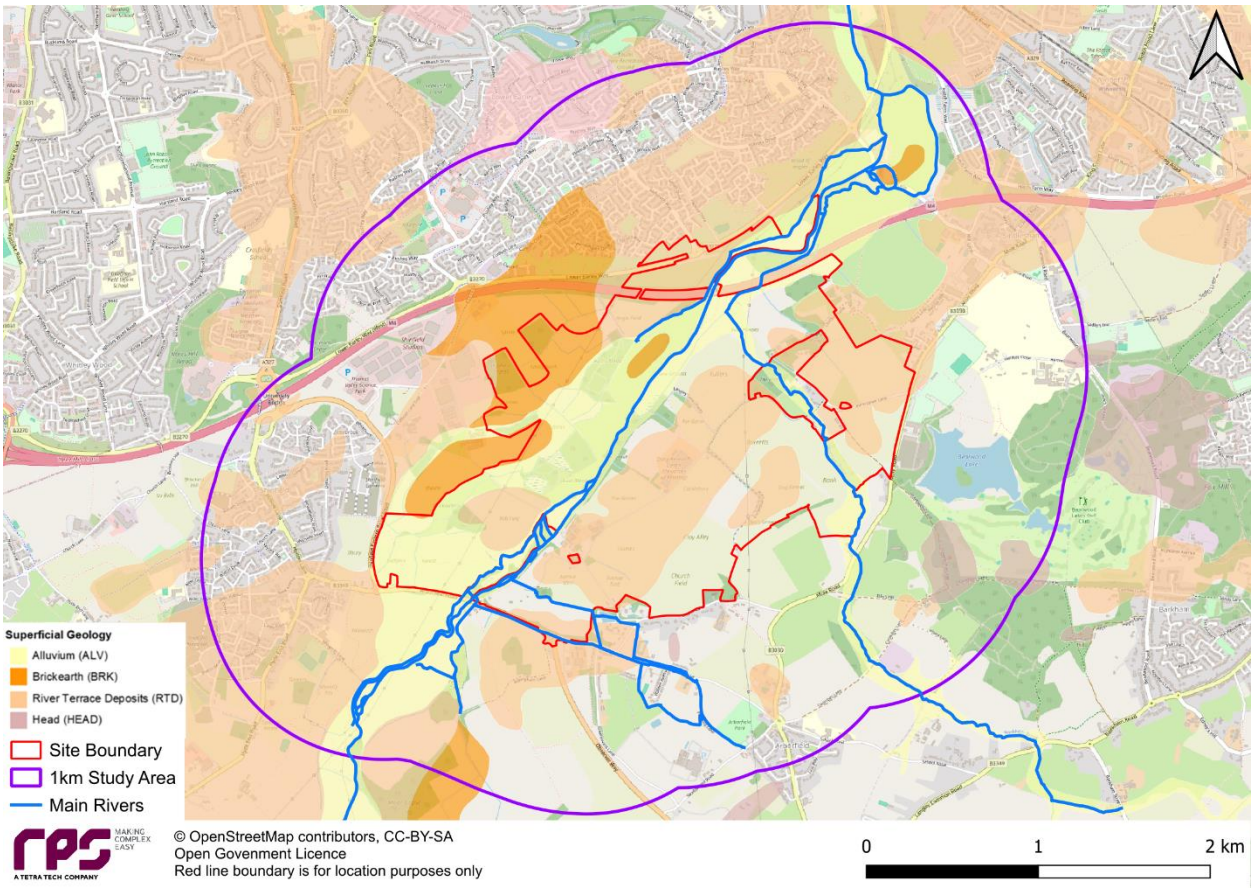

Figure 4 - Superficial Geology

Whilst groundwater is present in some of the superficial deposits on site, the distribution of wetlands and lack of perennial watercourses in most areas of the site suggest superficial groundwater flow paths are short and relatively isolated, only interacting with receptors such as wetlands within the floodplain of the Loddon.

3.2 Local Hydrology

Four EA designated “Main Rivers” run through the Site. These are:

- The River Loddon – A major tributary of the Thames, which runs through the centre of the Site from south-west to north-east. The Loddon is a lowland meandering river with, as it passes through the Site, good volume and variety of hydromorphological features. Pressures on the Loddon include agricultural runoff, invasive species and historic modifications primarily to support

the local milling industry. As it passes through the site, the Loddon is a large river with a Q95 low flow of approximately 2 m^3/s. The drainage catchment on site, being mostly composed of field drains with ephemeral flows, is relatively minor compared to the overall flows of the Loddon.

- Barkham Brook – A tributary of the Loddon, which enters the Site from the southeast and exits the Site in the north, shortly before its confluence with the River Loddon. Barkham Brook is heavily affected by agricultural pressures. The channel is choked by vegetation, including invasive species. Large volumes of filamentous algae are present and historic channelisation has reduced connectivity to the flood plain.
- Unnamed Watercourse 1 – herein referred to as 'Long Ten Watercourse'. A minor tributary of the Loddon which rises at the north east corner of Rushy Mead, within the Site boundary, and runs north east, running parallel to the Loddon, out of the Site prior to their confluence to the north east of Mill Lane. This channel functions as a groundwater fed, linear wetland.
- Unnamed Watercourse 2 – herein referred to as 'Arborfield Cut'. A set of connected channels which rise within the study area, to the south east of the Site, at Arborfield. Flowing northwest towards the Site, one reach of enters the Site at its south eastern corner and runs for approximately 500 m before reaching its confluence with the Loddon. In the Site, 'Arborfield Cut' function as seasonal field drains/flood channels with no permanent baseflow.

The Site is also home to a network of field drains. The majority of these are only seasonally wet and act as flood channels during high rainfall events to channel surface water towards Barkham Brook and the River Loddon. An RPS conducted water features survey recorded a single ditch to be groundwater fed and perennially wet. However, at the time of the site visit, there was no perceptible flow, and the ditch was observed to be heavily impacted by agricultural stresses.

The Site contains five wetlands located in the floodplain of the River Loddon. Whilst none of the wetlands shared a definitive hydraulic connection with the river, it can be assumed that the wetlands are fed by a combination of groundwater flows, through the shared superficial alluvium deposits, and inundation during flood events. These features are considered part of the River Loddon receptor due to this connection.

3.3 Surface Water WFD Status

The WFD runs in 6-year cycles, and is currently within the third cycle, which runs from 2022 – 2027. The Cycle 3 interim classification has not yet been published, however a classification update was published in 2022. The 2019 and 2022 data has been presented for the waterbodies in the study area.

It should also be noted, for the 2019 chemical status assessment, methods and evidence base were updated. Due to this change, all waterbodies now fail chemical status and cannot be compared to previous years.

The Site is located entirely within the Loddon WFD Operational Catchment. The study area extends slightly into the Kennet Operational Catchment in its western extent. The WFD surface water bodies which overlap with the study area are included in Table 2, below. Further details of the waterbodies are included as **Appendix A.**

Table 2 - WFD Surface Water Bodies

Name (WFD ID)	Management Catchment	Operational Catchment	Waterbody type
Loddon (Swallowfield to River Thames Confluence) (ID: GB106039023160)	Loddon and Tributaries	Loddon	River (5,189.4 ha catchment area)
Barkham Brook (ID: GB106039017400)	Loddon and Tributaries	Loddon	River (1871.46 ha catchment area)
Foudry Brook (West End Brook to M4) (ID: GB106039017380)	Kennet and Tributaries	Kennet	River (2351.19 ha catchment area)

Table 3 - WFD Classification Summary - Surface Water

Name (WFD ID)	Artificial or Heavily Modified	Overall Classification	Ecological Status	Biological Quality Elements	Hydromorphological Supporting Elements	Specific Pollutants	Chemical Status	Priority Hazardous Substances
Loddon (Swallowfield to River Thames Confluence) (ID: GB106039023160)	No	Moderate	Moderate (2019/2022)	Moderate (2019/2022)	Supports Good (2019/2022)	High (2019/2022)	Fail (2019)/ Does Not Require Assessment (2022)	Fail (2019)/ Does Not Require Assessment (2022)
Barkham Brook (ID: GB106039017400)	No	Moderate	Moderate (2019/2022)	Moderate (2019/2022)	Supports Good (2019/2022)	High (2019/2022)	Fail (2019)/ Does Not Require Assessment (2022)	Fail (2019)/ Does Not Require Assessment (2022)
Foudry Brook (West End Brook to M4) (ID: GB106039017380)	No	Poor	Poor (2019/2022)	Poor (2019/2022)	Supports Good (2019/2022)	High (2019/2022)	Fail (2019)/ Does Not Require Assessment (2022)	Fail (2019)/ Does Not Require Assessment (2022)

The majority of the Site and its study area is located within the Loddon (Swallowfield to River Thames) waterbody catchment, with a smaller area in the southeast surrounding Barkham Brook being located in the Barkham Brook catchment. Barkham Brook is a tributary of the River Loddon, therefore any works on one of the two rivers may have an impact on the WFD status of the other. A very small section of the study area overlaps with the Foudry Brook WFD catchment, a tributary of the River Kennet, which is in turn, a tributary of the Thames.

3.4 Groundwater WFD Status

The Site is not located within a groundwater body. However, a small section on the east of the study area is underlain by the Farnborough Bagshot Beds groundwater body. While the Chalk Group Aquifer (a principal aquifer) is present at depth within the study area, there is a significant cover of London Clay (unproductive strata), therefore WFD effects on this groundwater body have not been considered. Information on the Farnborough Bagshot Beds has been included in the table below.

Table 4 - WFD Classification Summary - Groundwater Bodies

Name (WFD ID)	Management Catchment	Operational Catchment	Waterbody type
Farnborough Bagshot Beds (ID: GB40602G601300)	Thames GW	Farnborough Bagshot Beds	Groundwater body (22304.293 ha)

4 WFD IMPACT ASSESSMENT

4.1 Screening Assessment

Watercourses which may be affected by the development were screened based upon the criteria outlined in the table below. The screening criteria have been based upon a conservative approach, to ensure all WFD impacts are given appropriate consideration.

Table 4: Screening criteria for WFD watercourses

Watercourse Category	Criteria	Screening Outcome	Receptor Value
No channel present	No evidence of presence of surface water feature (no defined channel present or evidence of historical channel but is now in filled)	Out	N/A
Channel with no baseflow* / Minor Tributary	Ordinary Watercourse Minor tributary (within WFD water body catchment). Artificially created drainage channel or small natural headwater or ephemeral channel. Channel with little or no baseflow. Absence of flowing water for majority of year / limited connection to water table (potential to dry out). Shallow, ponded water present at times. No regular fluvial geomorphological processes or features present Low potential to support freshwater fish, macroinvertebrate, and/or macrophyte species Riparian zone typically impacted by land use / regular vegetation management Low overall aquatic habitat and hydromorphological value	Out	Low
Channel with limited baseflow** / Moderate Tributary	Ordinary Watercourse or Main River that is a tributary of the WFD water body main river line Moderate tributary (within WFD water body catchment). Artificially created drainage channel or small natural channel. Channel with limited baseflow. Typically, shallow low flows. Non-definable morphological flow types, except in localised and isolated reaches. Limited and discrete active fluvial geomorphological processes and features. Limited potential to support freshwater fish, macroinvertebrate, and/or macrophyte species. Riparian zone may be impacted by land use / regular vegetation management in some Cases. Moderate overall aquatic habitat and hydromorphological value.	In	Moderate
Channel with limited baseflow** / Moderate Tributary within a Sensitive Area	As above Located within an area Designated SSSI, SAC or SPA	In	High
"Modified' channel with permanent baseflow*** / Primary Watercourse	Main River or a significant Ordinary Watercourse. WFD water body main river line. Modified natural channel with permanent baseflow. Likely designated as Heavily Modified Water Body (HMWB) under WFD. Definable flow types (but diversity impacted by modifications) Active fluvial geomorphological processes and features (but functionality and diversity	In	High

Watercourse Category	Criteria	Screening Outcome	Receptor Value
	impacted by modifications) Potential to support some freshwater fish, macroinvertebrate, and/or macrophyte species (but habitat value impacted by modifications) Riparian zone typically impacted by land use / regular vegetation management Aquatic habitat and hydromorphological potential (but currently restricted by modifications)		
"Functioning' channel with permanent baseflow*** / Primary Watercourse within a sensitive area	As above Located within an area Designated SSSI, SAC or SPA	In	Very High

* Sites typically assessed has having Q95 (the 5 percentile, low flow) flow ≤0.002m3/s

** Sites typically assessed has having Q95 flow >0.002m3/s to ≤0.01m3/s

*** Sites typically assessed has having Q95 flow >0.01m3/s

According to the screening criteria set out above, the waterbodies have been screened as follows:

- River Loddon – Screened In – The Loddon has been screened in for WFD assessment, with a receptor value of “Very High”. Whilst the stretch of river within the study area does not include any designated sites, SSSIs are located upstream and downstream of the Site (Stanford End Mill and River Loddon SSSI and Lodge Wood and Sandford Mill SSSI) which are hydrologically connected to the Loddon on Site.
- Barkham Brook – Screened In – Barkham Brook has been screened in for WFD assessment, with a receptor value of “High”. Whilst Barkham Brook is affected by agricultural pressures, which have impacted the hydromorphological regime of the river, the watercourse is a Main River and WFD Waterbody Watercourse.
- “Long Ten” Watercourse – Screened In – The “Long Ten” Watercourse is categorised as a Main River in EA mapping, and while there is limited morphological activity and the watercourse is heavily impacted by agricultural pressures, it appears to be groundwater fed and therefore, likely remains wet year-round. Therefore, “Long Ten” has been screened in with a receptor value of “Moderate”.
- “Arborfield Cut” – Screened In – The “Arborfield Cut” has been categorised as a Main River in EA mapping and has therefore been screened in for assessment. The watercourse appears to act as a seasonally wet flood channel / field drain, and was observed to be dry during a Water Feature Survey undertaken by RPS in June 2025.
- Seasonal Ditches – Screened Out – These ditches have no baseflow and as such are screened out.
- Groundwater Fed Ditch – Screened Out – This is an artificial channel which is disconnected from the rest of the surface water environment.
- Foudry Brook – Screened Out – A small portion of the study area in located within the catchment area of Foudry Brook. This river is not hydrologically connected to the site, and as such not sensitive to the development.
- Farnborough Bagshot Beds – Screened Out – The far extents of the Farnborough Bagshot Beds WFD groundwater body underlies a section of the study area. Water on site is not hydrologically connected to the Farnborough Bagshot Beds, as the Beds are separated from the site by elevation and the impermeable London Clay Formation.

4.2 Achievement of the WFD Objectives

The Thames RBMP states that the Significant Water Management Issues (SWMIs) in the district are: physical modifications, pollution from wastewater, pollution from towns and cities, pollution from metal mines, pollution from rural areas, changes to the natural flow and level of water, and negative effects of non-native invasive species.

The Thames River Basin District Management Plan sets out an overview of the planned improvements for the Thames River Basin District.

The Plan outlines the measures to achieve the priorities for the area. Some of the key measures are detailed below:

Physical Modifications

Methods to manage physical modifications are the following:

- Habitat restoration or creation;
- River restoration and fish pass improvements;
- Removal of barriers to fish passage;
- Riparian tree planting and fencing.

Managing Pollution from Wastewater, from Towns, Cities and Transport, from Metal Mines

Methods to manage pollution from wastewater, from towns, cities and transport, and from metal mines are the following:

- Pollution control initiatives.

Managing Pollution from Rural Areas

Methods to manage pollution from rural areas are the following:

- Reduce diffuse pollution at source;
- Mitigate/remediate diffuse pollution impacts on the receptor;
- Reduce diffuse pollution pathways.

Changes to Natural Flow and Levels

Methods to manage natural flow and levels are the following:

- Control pattern/timing of abstractions;
- Water demand management;
- Improvement to condition of channel/bed and/or banks/shoreline;
- Use alternative source/relocate abstraction or discharge.

Manage Non-Native Invasive Species

Methods to manage non-native invasive species are the following:

- Mitigation, control and eradication;
- Building awareness and understanding;
- Early detection, monitoring and rapid response;
- Prevent introduction.

Peatland Restoration

Methods to restore peatland are the following:

- Implementation of tried and tested methodologies in line with the England Peat Action Plan.

Measures from the above list which are relevant to the pressures impacting the waterbodies will be considered within the mitigation/improvements.

5 STAGE 2 – SCOPING ASSESSMENT

It is necessary to identify the impacts associated with the activities which will take place in relation to the construction and operation of the proposed development. The identified impacts will be considered alongside the embedded mitigation of the proposed development to scope in impacts that will not be managed by the embedded mitigation and may need further assessment and mitigation.

The scoping assessment has been applied based on the maximum design. The identified impacts will be considered alongside the embedded mitigation of the proposed development to scope in impacts that will not be managed by the embedded mitigation and may need further assessment and mitigation.

5.1 Proposed Works

The required works which form part of the proposed development, have been assessed to determine which have the potential to result in the greatest effect on an identified receptor or receptor group. Therefore, this comprises a conservative assessment of a worst-case scenario. The following works have been identified:

- Enabling works including site clearance, temporary access, erection of fences and security provisions;
- Installation of three crossings of the River Loddon;
  - A new open span bridge to serve the interior road and active travel route network, at the north of the Site;
  - A new pedestrian and cycle bridge, towards the centre of the Site; and
  - Refurbishment of an existing bridge, towards the south of the Site;
- Installation of two new water crossing points across Barkham Brook;
  - Design of these crossing points is yet to be determined, so for the purposes of this WFD assessment, it has conservatively been assumed that they will take the form of oversized culverts;
- Installation of an active travel path alongside the River Loddon. In its southern extent, this travel route will be of mown grass and in the north of the site this will take the form of a shared footway / cycleway;
- Residential development of land situated upon a Secondary A aquifer with groundwater levels of approximately 1 mbgl;
- Ground remediation and earthworks in the floodplain and riverbank;
- Construction of drainage network and outfalls;
- Movement of materials, waste and people to and from the Site; and
- Ongoing management measures.

5.2 Mitigation Measures Adopted as Part of the Proposed Development

Mitigation measures are generally broken down into the following categories:

- Embedded mitigation. This includes the following.
  - Primary (inherent) mitigation - measures included as part of the Proposed Development design. IEMA describes these as ‘modifications to the location or design of the development made during the pre-application phase that are an inherent part of the proposed development and do not require additional action to be taken’. This includes modifications arising through the iterative design process. These measures will be secured through consent. For example, a reduction in footprint or height.

  - Tertiary (inexorable) mitigation. IEMA describes these as 'actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects'.

- Secondary (foreseeable) mitigation. IEMA describes these as '*actions that will require further activity in order to achieve the anticipated outcome'*. These include measures required to reduce the significance of environmental effects (such as lighting limits).

5.2.1 Construction Phase

It is anticipated that potential hydrological impacts from the construction phase can be managed by the implementation of appropriate construction practices.

For the nature of the Proposed Development and potential associated impacts, an Outline Construction Environmental Management Plan (CEMP) will be prepared and submitted with the application. The CEMP would include industry good practice measures to ensure prevention of contaminated water run-off from all construction areas.

An Outline Pollution Prevention Plan (PPP) will be prepared and submitted with the application. The PPP will include details of emergency spill procedures. Good practice guidance detailed in the EA's Pollution Prevention Guidance will be followed where appropriate, or the latest relevant available guidance.

The Construction Drainage Strategy will incorporate pollution prevention and flood response measures to ensure that the potential for any temporary effects on water quality or flood risk are reduced as far as practicable during the construction stage. Such measures would be implemented through the CEMPs and associated Construction Method Statements, including but not limited to the following:

- installation of suitable facilities to remove material (e.g., mud and dust) from wheels;
- use of sediment fences along the existing watercourses/waterbodies when working nearby to reduce sediment load;
- covers for lorries transporting materials to/from site to prevent releases of dust/sediment to watercourses/drains;
- bulk storage areas to be secured and provided with secondary containment (in accordance with the Oil Storage Regulations and best practice);
- storage of oils and chemicals away from existing watercourses, including drainage ditches or ponds;
- concrete to be stored and handled appropriately to prevent release to drains;
- treatment of any runoff water that gathers in the trenches would be pumped via settling tanks or ponds to remove any sediment;
- obtain consent for any works (e.g., discharge of surface water) that may affect an existing watercourse. The conditions of the consent will be specified to ensure that construction does not result in significant alteration to the hydrological regime or an increase in fluvial risk;
- use of a documented spill procedure and use of spill kits kept in the vicinity of chemical/oil storage;
- storage of stockpiled materials on an impermeable surface to prevent leaching of contaminants and use of covers when not in use to prevent materials being dispersed and to protect from rain; and
- stockpiles to be kept to minimum possible size with gaps to allow surface water runoff to pass through.

Relevant permits will also be sought for the proposed works which have the potential to impact the watercourses within the vicinity of the proposed development.

5.2.2 Operation Phase

It is anticipated that potential hydrological impacts from the operation phase can be managed by the implementation of drainage management and adhering to requirements of the Environment Agency, Local Planning Authority and Lead Local Flood Authority.

The Proposed Development will attenuate runoff and restrict off-site flows with a consideration of climate change events.

It is anticipated that the Proposed Development will accommodate flows via attenuation basins across the Site.

Additional rural SuDS features (swales, bunds, attenuation features) upstream of the Site and within retained greenspace areas will contain and control runoff to maintain greenfield rates.

The SuDS will store water and release it slowly allowing for attenuation. The drainage will be designed in accordance with National and Local Planning Policy.

It is anticipated that the drainage strategy for the development will include features to appropriately treat surface water prior to discharge. The Simple Index Approach (SIA), as outlined within the SuDS Manual (CIRIA C753) should be followed.

5.3 Impacts as Part of the Proposed Development

With consideration of the above embedded mitigation, the below impacts have been identified as part of the proposed works which are likely to affect the hydrological environment:

Table 5 - Scoping of Potential Impacts

Potential Impact	Scoped In/Out	Justification
Construction		
Temporary dewatering to enable construction	Out	The construction of the proposed development will adhere to best practice guidance and risk assessment method statements, including measures to avoid and/or minimise disturbance of the water environment. Site investigation and monitoring will also be implemented before, during and after dewatering and excavation activities, in order to protect the integrity of nearby surface water features.
Footprint (e.g. the area of channel impacted by works in the vicinity of the channel)	In	The construction of the proposed development will adhere to best practice guidance and risk assessment method statements which include measures to avoid and/or minimised disturbance to the water environment. However, works are proposed within the channel which have the potential to impact the existing situation.
Pollution risk and altered drainage patterns from general construction activities	Out	The construction of the proposed development will adhere to best practice guidance and risk assessment method statements which include measures to avoid and/or minimised disturbance to the water environment. Construction activities will be temporary in nature.
Creating or altering of pathways along which existing poor quality groundwater can migrate	Out	The construction of the proposed development will adhere to best practice guidance and risk assessment method statements which include measures to avoid and/or minimised disturbance to the water environment. Construction activities will be temporary in nature.
Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	In	The proposed development has sought to reduce hydromorphological impacts as far as reasonably practicable by minimising in-channel works. However, works are proposed within the channel which have the potential to impact the existing situation.
Operation		
Footprint (e.g. the area of channel impacted by works in the vicinity of the channel)	In	The design of the proposed development has sought to reduce the length of impacted river channel as far as reasonably practicable. However, scheme components will result in a localised loss of existing river channel habitat.
Shading due to the presence of a structure	In	A 10m buffer will be maintained between the banks of ordinary watercourses, water dependent ecosystems, Main Rivers and temporary and permanent built development associated with the proposed development. This will mitigate the effect of shading for all structures outside of the watercourses, but there will be shading from water crossing points.

Potential Impact	Scoped In/Out	Justification
Changes to drainage patterns discharging to surface water body	Out	The design of the proposed development will adhere to best practice method statements, including measures to appropriately manage surface water and sediment runoff prior to discharge to the watercourse. The drainage strategy will ensure the incorporation of suitable drainage systems (including attenuation basins) to intercept, attenuate and discharge runoff from the highway and other proposed infrastructure in a manner that will not significant adversely impact upon the existing flow regime or water quality of receiving watercourse.
Altering of groundwater processes	Out	Whilst there may be minor changes in the existing groundwater regime as a result of the development, due to passive dewatering of the River Terrace Deposits to facilitate construction, the only receptors for this groundwater are Barkham Brook and the River Loddon. The drainage network will direct all groundwater that has been dewatered to these watercourses, maintaining overall flow.
Changes to hydrology leading to changes in processes and habitats upstream and downstream	In	The proposed development has sought to reduce hydromorphological impacts as far as reasonably practicable by minimising in-channel works. However, works are proposed within the channel which have the potential to impact the existing situation.

The detailed assessment is based upon the below impacts identified as potentially posing a risk to WFD quality elements in the scoping assessment:

Construction

- Footprint (e.g. the area of channel impacted by works in the vicinity of the channel); and,
- Changes to the waterbody hydromorphology leading to changes in river processes and habitats upstream and downstream.

Operation

- Footprint (e.g. the area of channel impacted by works in the vicinity of the channel);
- Shading due to the presence of a structure; and,
- Changes to hydrology leading to changes in processes and habitats upstream and downstream.

6 STAGE 3 – DETAILED IMPACT ASSESSMENT

6.1 Introduction

As highlighted in the above, the following impacts have been brought forward to the detailed impact assessment:

Construction

- Footprint (e.g. the area of channel impacted by works in the vicinity of the channel); and,
- Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream.

Operation

- Footprint (e.g. the area of channel impacted by works in the vicinity of the channel);
- Shading due to the presence of a structure; and
- Changes to hydrology leading to changes in processes and habitats upstream and downstream.

It has been determined that the above impacts are associated with the following activities:

- Introduction of drainage outfalls;
- Introduction of open span bridges;
- Introduction of culverts; and,
- Introduction of travel routes within the riparian buffer.

These activities will be assessed in further detail to determine the extent of the potential impact upon WFD waterbodies.

6.2 Detailed Impacts

Components of the proposed development have been assessed against the key parameters of the WFD (biological, hydro-morphological, physicochemical, chemical). **Table 5** below summarises potential impacts of the scheme components previously highlighted.

Table 6 - Impacts of Proposed Works

Element of Proposed Works	WFD Element Impact			
	Biological	Hydro-morphological supporting elements	Physicochemical supporting elements	Chemical
Drainage Outfalls	The footprint of drainage outfalls will extend into the channel of WFD waterbodies, resulting in a minor loss of habitat. Construction impacts will be managed via best practice method statements, however localised loss of existing river habitats which may extend beyond construction could have an adverse effect and require further mitigation.	The proposed drainage outfalls may cause a localised loss of riparian habitats. The anticipated effect upon flow dynamics, connection to floodplain and general channel structure will be dependent upon the dimensions, technique used and hydromorphological baseline within the locality of the outfall.	The proposed drainage outfalls may cause a localised change in the hydromorphological regime. The potential for alterations to river processes and effects on sediment transfer, turbidity, flows and dissolved oxygen are dependent upon the dimensions, technique used and hydromorphological baseline within the locality of the outfall.	No anticipated effects
Open Span Bridges	The shading of the channel by the bridge has the potential to reduce photosynthetic activity and therefore affect macrophyte communities present. If macrophyte cover is lost, shading may have indirect effect on macroinvertebrates.	Crossings will be designed so there is no footing in the watercourse. No realignment of watercourses is proposed. Footings and associated earthworks in riparian zone may have minor impact on floodplain connectivity and riparian zone loss due to land take, but unlikely to be significant.	Some shading will have negligible effect on water temperature and dissolved oxygen levels.	No anticipated effects.
Culverts	Likely to lead to localised but permanent loss of habitat due to landtake and shading. Increase in flow velocities and localised loss of riparian and flood plain connectivity likely to have minor localised negative impact. Culverts are only proposed on Barkham Brook and will serve as crossing points for active transport routes. As such it is anticipated that they will not be greater than 5 times the width of the watercourse.	Minor negative impact anticipated on sediment regime as culverts may lead to localised increase in flow velocity. Loss of flood plain and riparian zone due to landtake.	Some shading will have negligible effect on water temperature and dissolved oxygen levels.	No anticipated effects.
Active Travel Route	Where possible active travel routes are set back from the channel and water dependent ecosystems, and not anticipated to impact WFD biological elements.	Loss of riparian zone on one bank due to land take. The change in land use from arable agricultural land to permanently vegetated recreational land combined with some footpath / cycleway is anticipated to provide a net benefit to the riparian zone.	Change in land use from agricultural land to active travel route will remove a substantial pressure from diffuse source agricultural pollution on the watercourses, providing a minor beneficial impact on the physicochemical WFD elements.	No anticipated affects.

Based upon the above summary, the following specific impacts have been identified:

- disturbance of floodplain/riparian habitats and processes;
- disturbance of in-channel habitats/processes; and
- disturbance of wider hydromorphological processes.

6.3 WFD Mitigation / Enhancement

The specific impacts identified relate to the disturbance of floodplain/riparian habitats and processes, disturbance of in-channel habitats/processes, disturbance of wider hydromorphological processes, and alterations to groundwater processes. WFD mitigation for each of the specific proposed work elements have been included in **Table 7**.

Table 7 - Specific Mitigation Measures

Element of Proposed Works	WFD Element Mitigation			
	Biological	Hydro-morphological supporting elements	Physicochemical supporting elements	Chemical
Drainage Outfalls	Reinstate any bed and bank habitat lost during construction with native substrates and emergent planting. Install suitable fish and invertebrate refuge structures at each outfall. (i.e. rock rolls, backwaters etc.)	Utilise open channel style outfalls with inverts graded to channel bed slope and roughened linings to prevent local scour. The loss of riparian zone associated with landtake will be offset by improvements in quality of the riparian zone up to 20 m.	Pre-treatment of runoff during the SuDS train to treat suspended solids is anticipated to mitigate impact on physico-chemical elements.	No mitigation required.
Open Span Bridges	Impact of open span bridges is anticipated to be very minor. Span the watercourse on piles set back 10 m from the bank, leaving the entire watercourse bed in shade-gap light. Widening of the floodplain in the vicinity of the bridges, providing a wetland/marshland area to compensate for the shadowing.	Where possible, set footings outside of riparian zone. Provide betterment across the riparian zone with natural planting and removal of invasive species to mitigate loss of riparian zone length.	No mitigation required.	No mitigation required.
Culverts	Embed box culverts with 150 – 300 mm of natural substrate bed. Include a low flow channel within the culvert to maintain a wetted perimeter and provide fish passage during low flow conditions. Minimise the length of the culverts to minimise loss in watercourse length.	Ensure gradient of channel bed in culvert is equal to the natural bed. Provide betterment across the riparian zone with natural planting and removal of invasive species to mitigate for the loss in watercourse and riparian zone length.	No mitigation required.	No mitigation required.
Active Travel Route	Where possible, retain and enhance a 20 m vegetated buffer of native shrubs and trees along both banks of the watercourses and around water dependent ecosystems. The change in land use will mitigate any loss to habitat quantity in the section of site with a hardstanding active travel route in the riparian zone, by providing a substantial increase in habitat quality across the site. Any habitat lost due to land take will be reinstated in a 2:1 ratio.	Where possible, retain and enhance a 20 m vegetated buffer of native shrubs and trees along both banks of the watercourses and around water dependent ecosystems. The change in land use will result in less diffuse source pollution to the watercourses and remove an artificial source of small diameter sediments.	No mitigation required.	No mitigation required.

6.4 WFD Impact Post Mitigation

Based upon implementation of the above proposed measures, the proposed impacts on WFD are as follows:

- Drainage Outfalls – It is anticipated that a small amount of river bank habitat will be lost for landtake of each outfall. However, improvements in the riparian zone across the entire site, associated with the change in land use from agricultural land will provide a substantial overall improvement in quality of riparian and riverbank habitat. Additionally, the inclusion of fish and macroinvertebrate refuges will offset any interruption in channel habitat. Appropriate pre-treatment of surface water runoff in the SuDS network and a HydroBrake maintaining greenfield runoff rates will mitigate any impact on the physiochemical, chemical and hydromorphological WFD elements of the waterbody.
- Open Span Bridges – Open span bridges may slightly reduce photosynthetic activity due to shading and cause minor riparian zone loss, but careful design and riparian planting will minimize impacts.
- Box Culverts – Whilst there will be a loss in habitat associated with the footprint of the culverts, improvements to the riparian zone will provide an overall benefit to the habitat. The impact of the culverts on flow dynamics will be mitigated through the inclusion of natural substrates at the bed of the culvert and maintaining the gradient of the channel.
- Active Travel Routes – The proposed active travel routes located within the riparian zone will provide a net benefit to the riparian zone, due to the conversion of agricultural land to naturalised, less managed land types. Any habitats lost due to land take will be reinstated in a 2:1 ratio within the same catchment.

Overall, with best practice construction and targeted ecological and hydromorphological mitigation, the remaining impacts on WFD elements are anticipated to not result in a downgrading of WFD classification of the watercourses, and will not prevent reaching “Good” ecological rating in the future.

7 SUMMARY AND CONCLUSIONS

This report has completed a WFD compliance assessment of the impacts of the proposed development at Loddon Garden Village, taking into account the WFD water bodies within the vicinity of the site.

Implementing best construction and design practices will minimise the deterioration of the water environment and continue progress towards meeting the WFD objectives . The greatest impacts from the development are likely to arise from alterations to habitats, and hydromorphological/hydrogeological processes.

It has been determined that the introduction of construction and operational drainage systems and Construction Environmental Management Plans will sufficiently protect waterbodies from pollution risks. Disruptions to habitats, biological processes and hydromorphological/hydrogeological processes, have limited mitigation options, however, by following best practice guidance, selecting environmentally sensitive design options, and introducing protection and enhancement measures it is unlikely that 'Good' status will be prevented in the future.

The proposed development has the potential to provide local improvement techniques to be incorporated into the design, such as the inclusion of wetland areas. Inclusion of such features has the potential to provide a beneficial effect resulting in some localised improvement and also feeds into the wider RBMP objectives.

The proposed development will not cause failure to meet surface water 'Good Ecological Status' or 'Good Ecological Potential', result in a deterioration of surface water Ecological Status/Potential.

There are no changes which will permanently prevent or compromise the Environmental Objectives being met.

It is confirmed that the works proposed as part of the proposed development at Loddon Garden Village, meet the WFD objectives, and that the scheme is therefore compliant with the WFD regulations.

Appendix A – WFD Water Body Data

Table 1. Foudry Brook (West End Brook to M4) Water Body Classifications

Classification Item	2019	2022
Ecological	**Poor**	**Poor**
Biological quality elements	**Poor**	**Poor**
Fish	**Poor**	**Poor**
Invertebrates	**Good**	**Good**
Macrophytes and Phytobenthos Combined	**Moderate**	**Moderate**
Macrophytes Sub Element	**Moderate**	**Moderate**
Phytobenthos Sub Element	**Moderate**	**Moderate**
Physico-chemical quality elements	**Moderate**	**Moderate**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**Poor**	**Poor**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not High**	**Not High**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Not High**	**Not High**
Specific pollutants	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Permethrin	**High**	**High**
Zinc	**High**	**High**
Chemical	**Fail**	**Does not require assessment**
Priority hazardous substances	**Fail**	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)fluoranthene	**Good**	
Benzo(g-h-i)perylene	**Fail**	
Benzo(k)fluoranthene	**Good**	
Cadmium and its compounds	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	**Good**	
Perfluorooctane sulphonate (PFOS)	**Fail**	
Polybrominated diphenyl ethers (PBDE)	**Fail**	
Tributyltin Compounds	**Good**	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	

Lead and its compounds	**Good**	
Nickel and its compounds	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**

Table 2. Loddon (Swallowfield to River Thames Confluence) Water Body Classifications

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Moderate**	**Moderate**
Fish	**Moderate**	**Moderate**
Invertebrates	**High**	**High**
Macrophytes and Phytobenthos Combined	**Good**	**Good**
Macrophytes Sub Element	**Good**	**Good**
Phytobenthos Sub Element	**High**	**High**
Physico-chemical quality elements	**Moderate**	**Moderate**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**High**	**High**
Phosphate	**Moderate**	**Moderate**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not High**	**Not High**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Not High**	**Not High**
Specific pollutants	**High**	**High**
Arsenic	**High**	**High**
Copper	**High**	**High**
Iron	**High**	**High**
Manganese	**High**	**High**
Permethrin	**High**	**High**
Triclosan	**High**	**High**
Zinc	**High**	**High**
Chemical	**Fail**	**Does not require assessment**
Priority hazardous substances	**Fail**	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Cadmium and its compounds	**Good**	
Di(2-ethylhexyl)phthalate (Priority hazardous)	**Good**	

Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Hexachlorocyclohexane	**Good**	
Mercury and Its Compounds	**Good**	
Nonylphenol	**Good**	
Perfluorooctane sulphonate (PFOS)	**Fail**	
Polybrominated diphenyl ethers (PBDE)	**Fail**	
Tributyltin Compounds	**Good**	
Priority substances	**Good**	**Does not require assessment**
1,2-dichloroethane	**Good**	
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Lead and its compounds	**Good**	
Nickel and its compounds	**Good**	
Pentachlorophenol	**Good**	
Trichlorobenzenes	**Good**	
Trichloromethane	**Good**	
Other Pollutants	**Good**	**Does not require assessment**
Aldrin, Dieldrin, Endrin & Isodrin	**Good**	
Carbon Tetrachloride	**Good**	
DDT Total	**Good**	
Tetrachloroethylene	**Good**	
Trichloroethylene	**Good**	
Para – para DDT	**Good**	

Table 3. Barkham Brook Water Body Classification

Classification Item	2019	2022
Ecological	**Moderate**	**Moderate**
Biological quality elements	**Moderate**	**Moderate**
Fish	**Moderate**	**Moderate**
Invertebrates	**Moderate**	**Moderate**
Macrophytes and Phytobenthos Combined	**Moderate**	**Moderate**
Macrophytes Sub Element	**Moderate**	**Moderate**
Physico-chemical quality elements	**Moderate**	**Moderate**
Acid Neutralising Capacity	**High**	**High**
Ammonia (Phys-Chem)	**High**	**High**
Dissolved oxygen	**Good**	**Good**
Phosphate	**Poor**	**Poor**
Temperature	**High**	**High**
pH	**High**	**High**
Hydromorphological Supporting Elements	**Not High**	**Not High**
Hydrological Regime	**Supports good**	**Supports good**
Morphology	**Not High**	**Not High**
Specific pollutants	**High**	**High**
Iron	**High**	**High**
Triclosan	**High**	**High**
Chemical	**Fail**	**Does not require assessment**
Priority hazardous substances	**Fail**	**Does not require assessment**
Benzo(a)pyrene	**Good**	
Benzo(b)flu Di(2-ethylhexyl)phthalate (Priority hazardous)oranthene	**Good**	
Dioxins and dioxin-like compounds	**Good**	
Heptachlor and cis-Heptachlor epoxide	**Good**	
Hexabromocyclododecane (HBCDD)	**Good**	
Hexachlorobenzene	**Good**	
Hexachlorobutadiene	**Good**	
Mercury and Its Compounds	**Good**	
Nonylphenol	**Good**	
Perfluorooctane sulphonate (PFOS)	**Good**	
Polybrominated diphenyl ethers (PBDE)	**Fail**	
Tributyltin Compounds	**Good**	
Priority substances	**Good**	**Does not require assessment**
Cypermethrin (Priority)	**Good**	
Fluoranthene	**Good**	
Other Pollutants	**Does not require assessment**	**Does not require assessment**