

Crest Nicholson Operations Ltd (Chiltern Division)

Barkham Square, Arborfield, Wokingham,
RG41 4TJ

Flood Risk Assessment & Drainage Strategy

REPORT NO. 2303262-ACE-XX-XX-RP-C-0301-
REVD

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CONTENTS

	Page
1. INTRODUCTION	1
2. SITE OVERVIEW	2
Site Location	2
Development Proposals	2
Hydrology	3
Ground Conditions	4
Topography	6
3. POLICY CONTEXT	8
National Planning Policy Framework	8
Sustainable Drainage Systems - National Standards for Sustainable Drainage Systems (SuDS) - June 2025	9
Wokingham Borough Council Strategic Flood Risk Assessment Level 1 (SFRA, 2023)	10
Wokingham Borough: Adopted Core Strategy Development Plan (January 2010)	11
Sequential and Exception Test Requirements	14
4. SOURCES OF FLOODING	15
Flood Zone Designation	15
Tidal Flooding	16
Fluvial Flooding	16
Pluvial Flooding	18
Sewer Flooding	20
Groundwater Flooding	20
Artificial Sources	20
5. PROPOSED SUSTAINABLE DRAINAGE SYSTEMS	22
Existing Surface Water Drainage	22
Existing Discharge Rates	22
Proposed Sustainable Drainage Systems (SuDS)	23
Updated National Standards for Sustainable Drainage Systems (SuDS)	24

Standard 1: Runoff Destinations	25
Standard 2: Management of Everyday Rainfall (Interception)	27
Standard 3: Management of Extreme Rainfall and Flooding	30
Standard 4: Water Quality	33
Standard 5: Amenity	34
Standard 6: Biodiversity	35
Standard 7: Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity	35
6. CONCLUSIONS	37

Appendices

Appendix A: Illustrative Parameter Plan
Appendix B: Borehole Records
Appendix C: Topographic Survey
Appendix D: Greenfield Runoff Rate Calculations
Appendix E: Preliminary Drainage Strategy Drawing
Appendix F: Foul Water Capacity Response (Thames Water)

Figures

Figure 2-1: Site Location Plan

Figure 2-2: Preliminary Development Proposals

Figure 2-3: Hydrology

Figure 2-4: BGS Online Mapping – Bedrock

Figure 2-5: BGS Online Mapping – Superficial Deposits

Figure 2-6: Extract – Site Topography

Figure 4-1: EA Flood Map for Planning

Figure 4-2: Modelled Climate Change Flood Extents

Figure 4-3: Surface Water Flood Map

Figure 5-1: Proposed Concept Masterplan and Parcel Location

Figure 5-2: Screenshot of Causeway Flow Storage Estimate Function

Tables

Table 3-1: Loddon Management Catchment Peak Rainfall Allowances

Table 3-2: Loddon Management Catchment Peak River Flow Allowances

Table 5-1: C753 SuDS Management Train

Table 5-2: Interception for Proposed Basins

Table 5-3: Summary of Pre- and Post-Development Impermeable Areas

Table 5-4: Greenfield Runoff Rates

Table 5-5: CIRIA C753 SuDS Mitigation Indices

DOCUMENT CONTROL SHEET

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
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1. Introduction

- 1.1. Ardent Consulting Engineers (hereafter referred to as “Ardent”) has been commissioned by Crest Nicholson Operations Ltd to undertake a Flood Risk Assessment & Drainage Strategy in support of an outline application (with all matters reserved except for access) for residential development (Use Class C3), plus elderly care dwellings (Use Class C2/C3), associated open space, allotments, green and blue infrastructure including the provision of Suitable Alternative Natural Greenspace (SANG) and other associated works at the land north of Arborfield Green, Arborfield, Wokingham (hereafter referred to as ‘the site’).
- 1.2. This report aims to demonstrate to the Local Planning Authority and Statutory Consultees that the site can be suitably redeveloped with appropriate consideration in relation to flood risk and surface water management in compliance with the requirements of the NPPF and all other relevant local and national policy.
- 1.3. This Flood Risk Assessment has been prepared to support an outline planning application to be submitted to Wokingham Borough Council (WBC) as Local Planning Authority (LPA).

2. Site Overview

Site Location

2.1. The site is located adjacent to the northern boundary of Arborfield Green and approximately 1km southwest of Barkham Village, Wokingham, at OS Grid Reference SU 77390 66494. Figure 2-1 below shows the site in a local context.



Figure 2-1: Site Location Plan

2.2. The site is approximately 44.9 ha and is currently entirely Greenfield comprising of agricultural grassland, sporadic mature tree coverage and parcels of ancient woodland with the Barkham Brook flowing northwards through the site.

Development Proposals

2.3. The development proposals include up to 660 No. residential dwellings and elderly care accommodation units. The proposed illustrative parameter plan is illustrated in *Figure 2-2* below with the full drawing provided in **Appendix A**.

- 2.4. Vehicular access points to the development are proposed via Langley Common Road to the north of the development and via Commonfield Lane to the south.

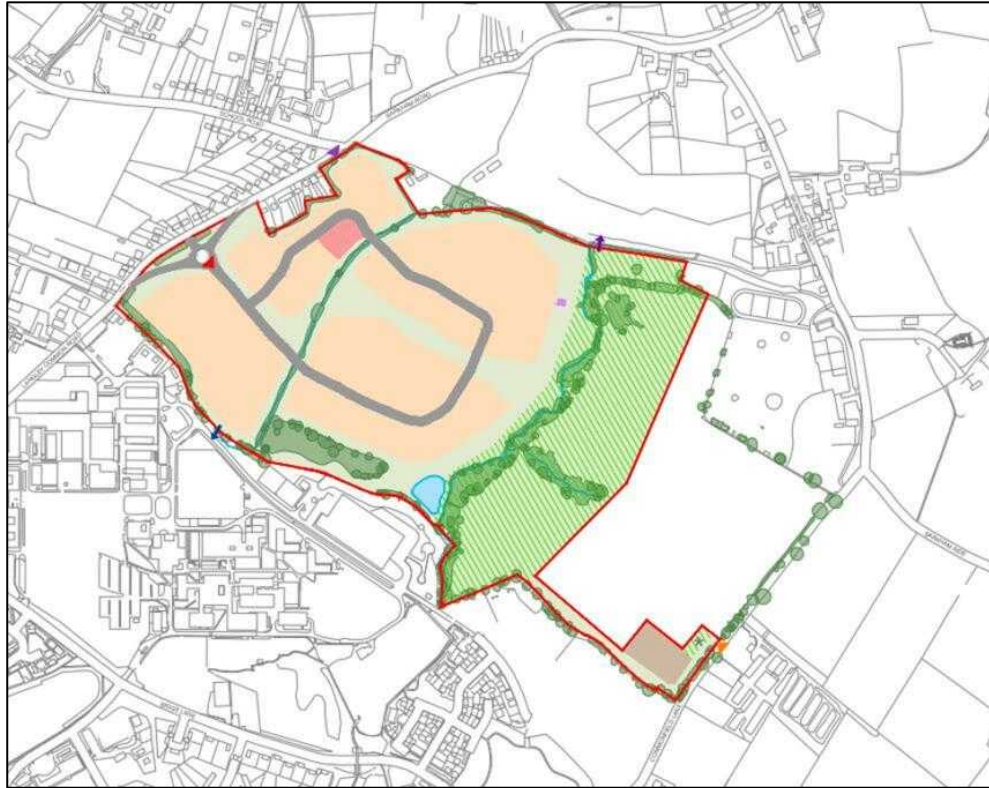


Figure 2-2: Preliminary Development Proposals

- 2.5. The National Planning Policy Framework (NPPF) and Planning Practice Guidance classifies residential development as 'more vulnerable' and commercial development as 'less vulnerable'.

Hydrology

- 2.6. The site lies in the catchment of Barkham Brook (a tributary of the River Loddon). The Barkham Brook runs through the site while Blackwater River is located approximately 3.5km south of the site and the Loddon River approximately 3km to the west of site, refer to *Figure 2-3* below.
- 2.7. A small unnamed watercourse is running south to north through the western portion of the site. This outflows to the Barkham Brook near the site's northern boundary. Additional Surface water features

comprise of a lake located to the south of the site near Barkham Brook. Longmore Lake is located approximately 1.2km southeast of the site.

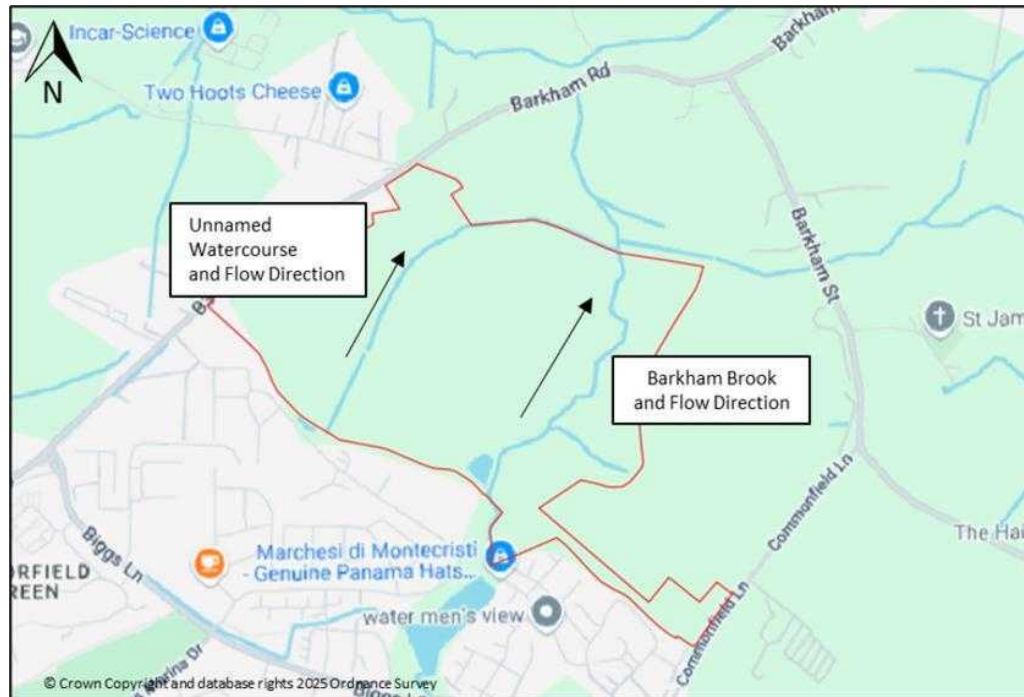


Figure 2-3: Hydrology

- 2.8. In addition to the features mentioned above, a number of watercourses and water bodies are located within the catchment of the Loddon and tributaries Management Catchment and within the Study Area. These are not in direct hydrological connectivity with the site.

Ground Conditions

- 2.9. A review of British Geological Survey (BGS) mapping indicates that the bedrock geology consists of the London Clay Formation (clay) and the Bagshot Formation (sand) at the southeastern corner, with superficial deposits of the Alluvium (Clay, silt, sand and gravel) recorded across the site. Refer to *Figure 2-3* and *Figure 2-4* below for BGS Bedrock and Superficial Deposits respectively.

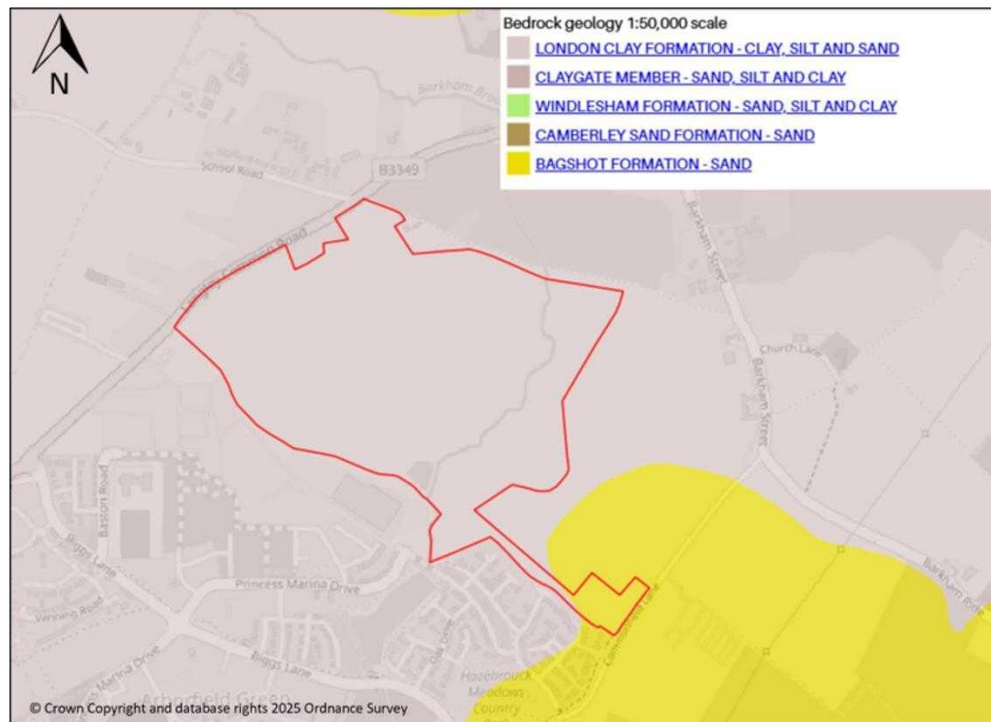


Figure 2-4: BGS Online Mapping – Bedrock Geology

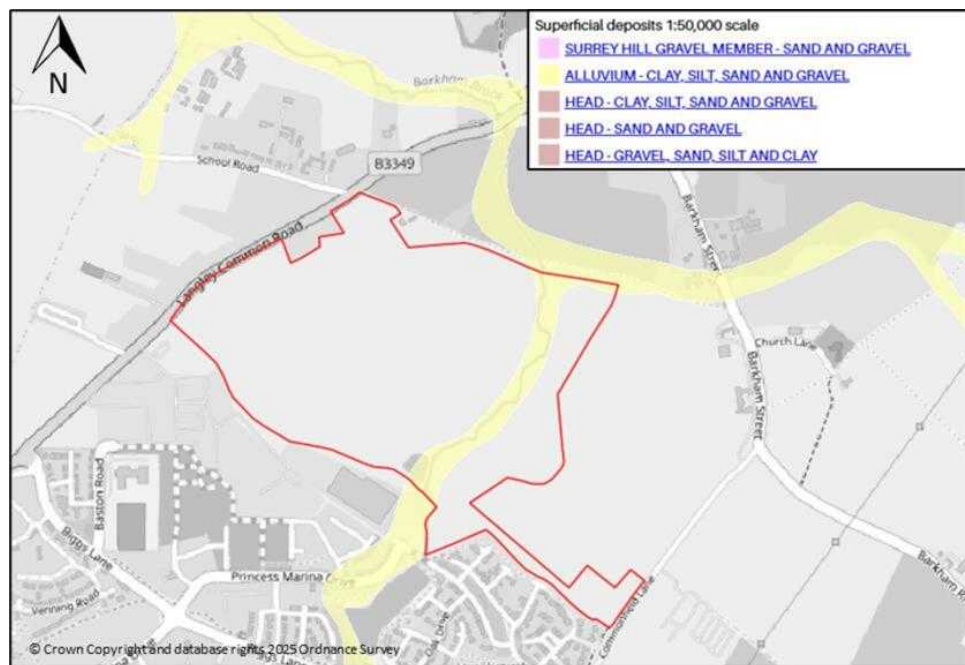


Figure 2-5: BGS Online Mapping – Superficial Deposits

2.10. A historic borehole is recorded by BGS in the southeast portion of the site (SU76NE54) to a depth of 6m and made ground for a depth of 0.7m, followed by clay up to a depth of 6m. Groundwater was struck at a depth of 4.10m below ground level. Refer to **Appendix B** for a copy of borehole records.

2.11. The Department for the Environment, Food and Rural Affairs (DEFRA) 'Magic Map' indicates the site is not located within a Source Protection Zone. These zones help to monitor risk of contamination from any activities that might cause pollution to the groundwater source. The map shows the site to be located on a superficial drift aquifer (secondary, undifferentiated).

Topography

2.12. A topographical survey was undertaken at the site in January 2025 by CD Services Ltd. The survey indicates that the site is divided into two parcels by an existing unnamed watercourse. The western parcel generally slopes north/east towards the watercourse. There is a mound in the south with highest levels of 60mAOD falling to around 51mAOD in the watercourse (Barkham Brook) at the north, refer to *Figure 2-6* below for an extract of the topographical survey.

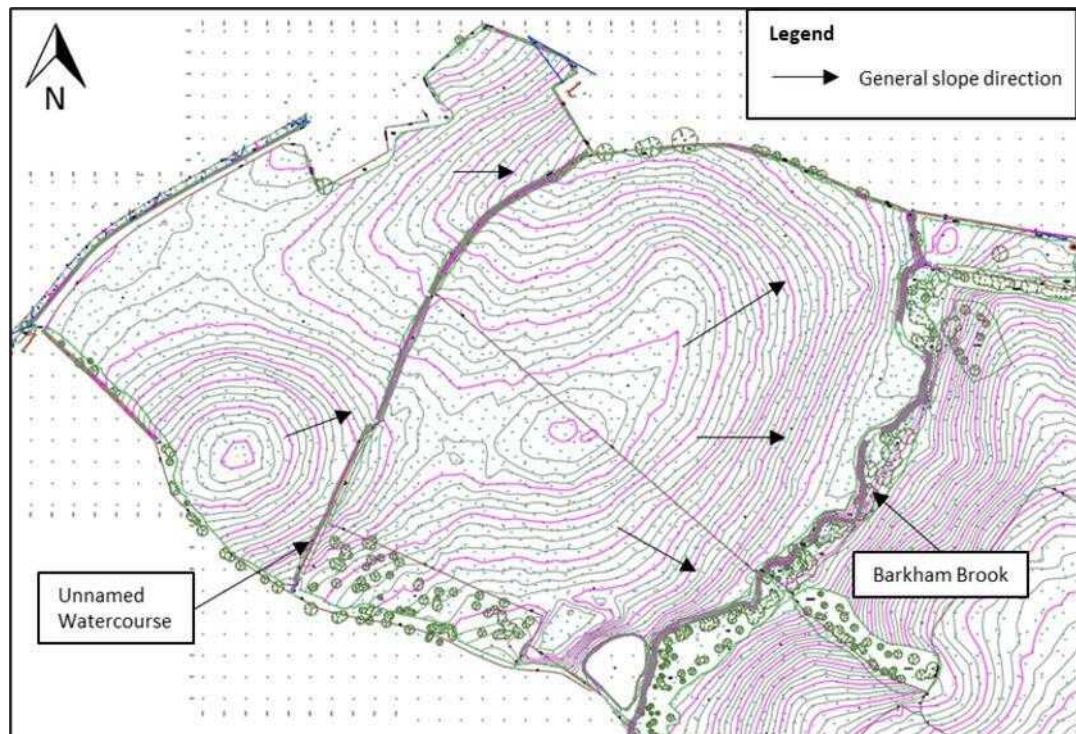


Figure 2-6: Extract – Site Topography

2.13. The eastern plot slopes towards the Barkham Brook to the east from a high of approximately 56mAOD to a low circa 48mAOD at the watercourse.

Whilst there are variations across site levels with multiple high points and many slopes, the general fall across site is in an easterly direction.

2.14. A full topographic survey drawing is included in **Appendix C**.

3. Policy Context

National Planning Policy Framework

- 3.1. The National Planning Policy Framework (NPPF) was introduced on 27 March 2012. This document was revised most recently in December 2024 (and further in February 2025); where paragraphs 170 to 182 inclusive establish the Planning Policy relating to flood risk management.
- 3.2. It states all plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – to avoid where possible, flood risk to people and property. They should do this and manage residual risk, by:
- a) applying the sequential test, and if necessary, the exception test;
 - b) safeguarding land from development that is required for current and future flood management;
 - c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and
 - d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development including housing, to more sustainable locations.
- 3.3. The NPPF states that a Flood Risk Assessment is required “A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a

more vulnerable use.”

- 3.4. The Planning Practice Guidance (PPG) provides the methodology required to undertake the Sequential and Exception Tests.
- 3.5. The Sequential Test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).
- 3.6. Applications for some minor development and changes of use should also not be subject to the sequential test, nor the exception test set out below, but should still meet the requirements for site-specific flood risk assessments.
- 3.7. Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (taking climate change into account), without increasing flood risk elsewhere, then the Sequential Test need not be applied.
- 3.8. With regards to permitted development rights, the GDPO requires applications for prior approval to demonstrate that there will be no adverse flooding risks in relation to the building.

Sustainable Drainage Systems - National Standards for Sustainable Drainage Systems (SuDS) - June 2025

- 3.9. The National Standards for sustainable drainage systems (SuDS) were published in June 2025 which supersede the Non-statutory Technical Standards for SuDS published in March 2015. This document sets out seven standards that are complementary and the delivery of each standard should support delivery of the other standards.
- 3.10. There may be specific circumstances or constraints, such as the type or size of a development that mean it is not possible to deliver one or

more of the standards. In these circumstances the opportunity to meet the standard shall be maximised and justification be developed in consultation with the approving body, who may agree to a departure.

3.11. They standards should be used in conjunction with the Planning Practice Guidance (PPG).

3.12. The Local Planning Authority (LPA) may set local requirements for planning permission that have the effect of more stringent requirements than these non-statutory technical standards.

3.13. In addition, SuDS should be designed in accordance with CIRIA 753 SuDS Manual, which represents current best practice.

Wokingham Borough Council Strategic Flood Risk Assessment Level 1 (SFRA, 2023)

3.14. The Wokingham Borough Council Level 1 Strategic Flood Risk Assessment (SFRA) provides an overview of flood risk from all potential sources and to inform flooding policies including the allocation of land for development. The report provides an assessment of the level of flooding geographically and outlines the constraints of flooding on future development proposals.

3.15. The Level 1 SFRA confirms that within the study area, the primary fluvial flood risk is along the River Thames, River Loddon, River Blackwater, Emm Brook, Foudry Brook, and their main tributaries. The fluvial flood extents cover the majority of the western and northern border of the borough and split the area through the centre along the path of the River Loddon, which flows in a north-easterly direction through the borough.

3.16. Regarding surface water flooding, there are a number of prominent overland flow routes that largely follow the topography of the watercourses within the borough. There are also considerable flow routes following the roads through the main urban areas of Wokingham, Earley and Lower Earley, and Finchampstead which, alongside isolated areas of ponding, may affect many properties across these settlements.

3.17. In general, areas with greater than 50% susceptibility to groundwater flooding are along the main flow routes of the River Thames, River Loddon, River Blackwater, and Foudry Brook. There is a potential risk of flooding from reservoirs both within Wokingham Borough and those outside.

3.18. It is also noted that areas at risk of flooding today are likely to become at increased risk in the future and the frequency of flooding will also increase in such areas, because of climate change.

Wokingham Borough: Adopted Core Strategy Development Plan (January 2010)

3.19. The Core strategy sets out the vision for how the borough will develop in the period to 2026 and how the council aims to protect and enhance the good quality of life enjoyed in the borough. This is achieved through a number of Core Strategy Policies of which Core Policy 1 (CP1) sets out the requirement for development to “limit any adverse effects on water quality (including ground water)”, “ensure the provision of adequate drainage” and “avoid increasing (and where possible reduce) risks of or from all forms of flooding (including from groundwater)”.

3.20. It should be noted that work is underway on a new local plan – the Local Plan Update – which will put in place a new planning strategy for the period to 2040. Once adopted, it will replace the current Core Strategy and Managing Development Delivery local plans. The Local Plan Update will include a vision, objectives and strategy for development and growth in the borough. The new local plan is scheduled to be adopted in 2026.

Wokingham SuDS Strategy (January 2017)

3.21. This guidance document sets out the long-term vision for the use of sustainable drainage systems (SuDS) in the Borough with a focus on managing flood risk and improving the water environment, ensure that SuDS is a consideration when masterplanning all major developments.

3.22. The overall Borough vision will be achieved via targeted themes for the Borough; of which the SuDS Strategy will help to deliver the following:

- The use of well-designed SuDS in redevelopment [to] create better places to live, work and play, through cleaner and greener urban environments.
- Create an environment that allows businesses to thrive.
- Sustainable management of surface water runoff ensures business and transport links are not disrupted by flooding.
- Deliver well designed development and strong communities. Well-designed SuDS are recognised as an effective way to provide areas of attractive public open space, creating useable areas for social and recreational activities, providing cleaner and greener urban environments and helping to develop social cohesion amongst communities. Improved social cohesion can enhance quality of life, create better communities and enhance productivity.

3.23. In addition to contributing to the central themes listed above, this SuDS document has also been developed to assist in delivering key objectives for flood risk and the water environment in the Borough:

1. To manage known surface water drainage issues in the Borough.
2. To manage water quality issues in the Borough.
3. To manage water quantity issues in the Borough.
4. To ensure well designed SuDS are used appropriately in all new and re-development.

Climate Change Allowances

3.24. The Planning Practice Guidance states that to allow for the predicted impacts of climate change on surface water runoff, consideration should be given to the catchment within which the site is located. The site is located within the Loddon Management Catchment and as such the

following allowances to rainfall intensity detailed in *Table 3-1* are applicable to the site.

Table 3-1: Loddon Management Catchment Peak Rainfall Allowances

	Central	Upper
3.3% annual exceedance rainfall event		
2050s	20%	35%
2070s	25%	35%
1% annual exceedance rainfall event		
2050s	20%	40%
2070s	25%	40%

3.25. Therefore, under the NPPF an allowance of 40% for the effects of climate change for the 1% annual exceedance rainfall event would achieve the policy requirements in designing the drainage elements for the proposed development.

3.26. The Planning Practice Guidance states that to allow for the predicted impacts of climate change on Peak River Flow Allowances, consideration should be given to the catchment within which the site is located. The site is located within the Loddon Management Catchment and as such the following allowances detailed in *Table 3-2* are applicable to the site.

Table 3-2: Loddon Management Catchment Peak River Flow Allowances

	Central	Higher	Upper
2020s	7%	11%	23%
2050s	4%	10%	25%

2080s	14%	23%	46%
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3.27. For 'more' vulnerable development the Planning Practice Guidance states that the central allowance should be used. Therefore, under the NPPF, an allowance of 14% would achieve the policy requirements in assessing the flood risk associated with the development.

Sequential and Exception Test Requirements

3.28. The aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

4. Sources of Flooding

4.1. The NPPF requires flood risk from the following sources to be assessed, each of which are assessed separately below:

- Fluvial sources (river flooding);
- Tidal sources (flooding from the sea);
- Pluvial sources (flooding resulting from overland flows);
- Sewer Flooding;
- Groundwater sources;
- Artificial sources, canals, reservoirs etc.; and,
- It also requires the risk from increases in surface water discharge to be assessed (surface water management).

Flood Zone Designation

4.2. Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. The NPPF Planning Practice Guidance defines Flood Zones as follows:

- **Flood Zone 1: Low Probability.** Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
- **Flood Zone 2: Medium Probability.** Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
- **Flood Zone 3a: High Probability.** Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
- **Flood Zone 3b: The Functional Floodplain.** This zone comprises land where water from rivers or the sea has to flow or

be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:

- land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or
- land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

Tidal Flooding

- 4.3. The River Loddon, to which Barkham Brook and Blackwater River discharge to, is a tributary of the River Thames. The Loddon joins the River Thames near the village of Wargrave, north-east of Reading. The tidal limit of the River Thames is located at Teddington, more than 30km downstream of the Loddon confluence, and so the site is therefore considered to be at no risk of tidal flooding, and further consideration of this risk is not considered necessary. The tidal flood risk to the site is considered to be 'low'.

Fluvial Flooding

- 4.4. According to the Environment Agency's Flood map for planning, as illustrated in *Figure 4-1* below, the majority of the site is located in Flood Zone 1, however Flood Zone 2 and 3 areas can be found on the south-eastern part of the site and are associated with the floodplain of Barkham Brook.
- 4.5. These Flood Zones have been produced by the Environment Agency in the context of providing flood mapping for the largest watercourses, at catchment scale.
- 4.6. Flood risk data was requested from the Environment Agency. AECOM as part of the Arborfield Garrison site, located to the south of the site,

undertook hydraulic modelling which was provided and used to inform flood risk at the site.

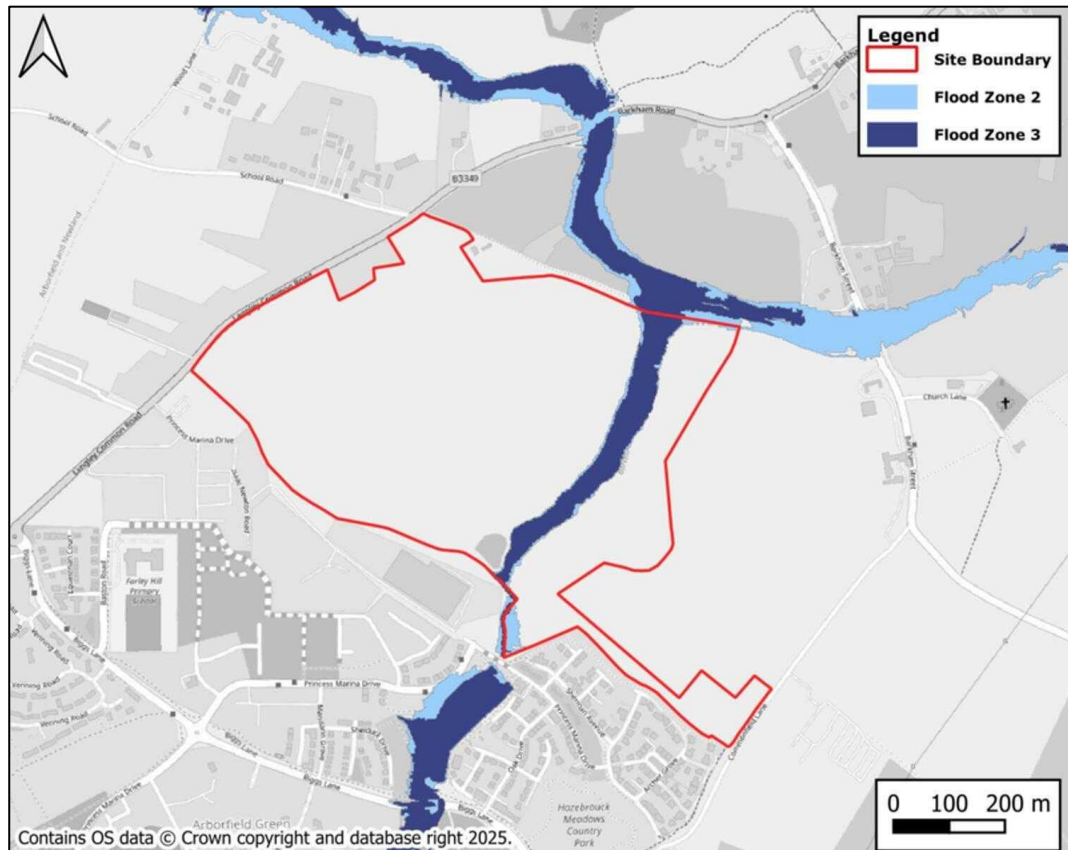


Figure 4-1: Environment Agency Flood Map for Planning

4.7. The model includes both the central (14%) and higher central (23%) climate change allowances, refer to *Figure 4-2 below*. The flood extents are not shown to reach the developable areas of the site and were used to inform the site masterplan. The maximum flood level recorded onsite during the climate change scenarios was 49.40 mAOD at the southernmost extent within the watercourse.

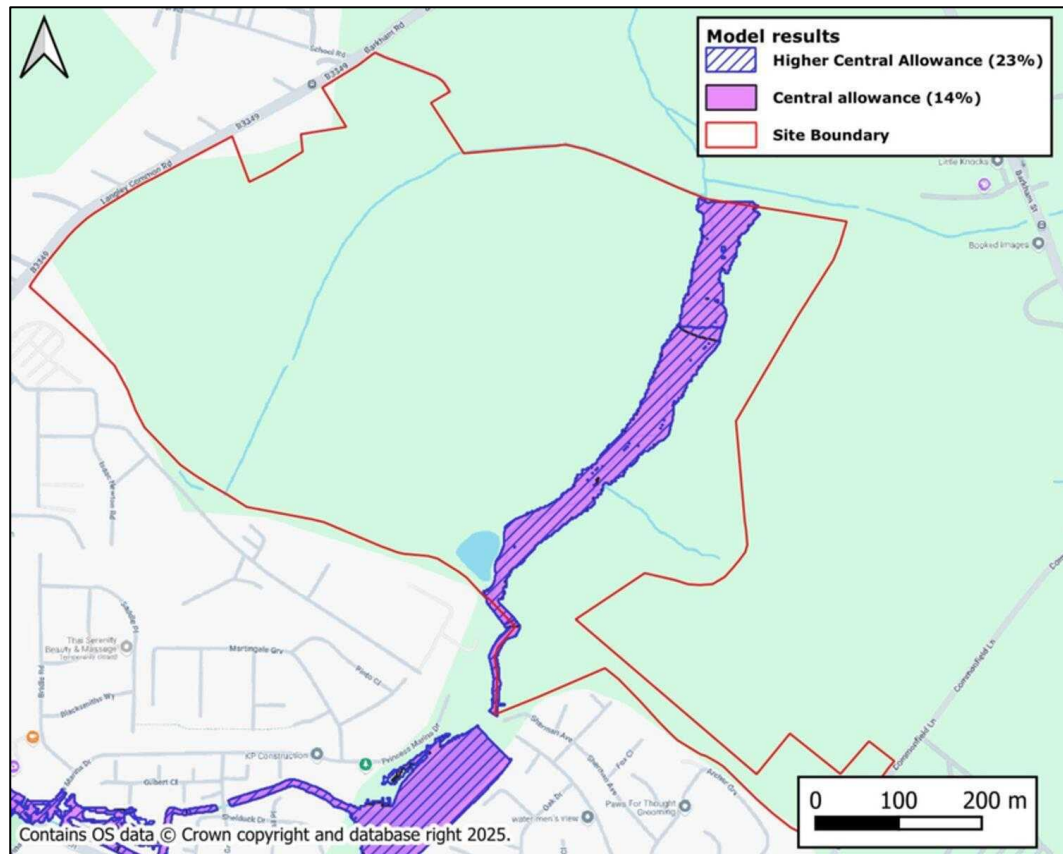


Figure 4-2: Modelled Climate Change Flood Extents

4.8. A sequential approach was undertaken in order to locate residential buildings outside the flood outline and allow the proposed open space areas to flood. The areas surrounding the Barkham Brook will remain as green open space with all SuDS and residential areas located outside of Flood Zones 2 and 3.

4.9. The fluvial flood risk to the site is considered to be 'low' as the modelling has demonstrated the developable areas are not considered to be at risk of flooding from the Barkham Brook.

Pluvial Flooding

4.10. Environment Agency's Risk of Flooding from Surface Water map dataset, displayed below in *Figure 4-3*, shows that the development site is predominantly in an area that has a 'very low' risk of flooding (<0.1% AEP). There are areas shown as being at 'low' to 'high' risk (1% - >3.3% AEP) which are attributable to the Barkham Brook, existing watercourse and site topography.

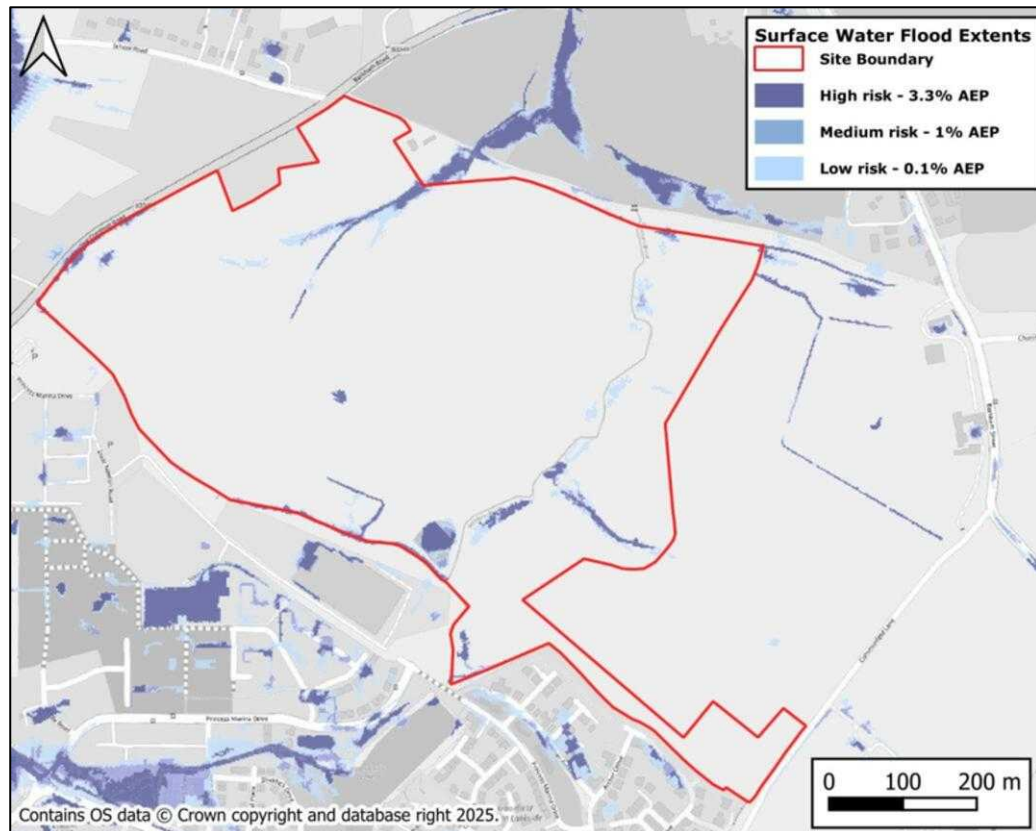


Figure 4-3: Environment Agency Flood Map for Surface Water

- 4.11. The proposed site layout and surface water drainage strategy will be designed to minimise surface water flood risk. It will incorporate areas of open green space in areas identified as being at risk of flooding and will ensure that no surface water flooding occurs across the site for events up to and including the 1-in-100-year return period plus 40% allowance for climate change.
- 4.12. The proposed levels strategy will be designed to ensure exceedance flows will be directed away from the proposed developments and towards the landscaped and road areas, minimising the risk of surface water flooding to the occupants.
- 4.13. Overall, due to the site's proposed use, and surrounding areas, the risk of pluvial flooding associated with the development is considered 'low'.

Sewer Flooding

- 4.14. Sewer flooding typically occurs as a result of short intense rainfall events, during which the receiving network has insufficient capacity to accommodate surface water flows, resulting in surcharging of pipes and manholes.
- 4.15. The Wokingham SFRA provides Thames Water recorded flooding incidents related to public foul, combined or surface water sewers within the Borough using truncated postcodes. Within the RG41 4 postcode there were a total of 9 recorded sewer flood incidents from 2000 – 2022 although it is not clear how close these were to the development site.
- 4.16. The site is located in a predominantly rural area and, as such, there are no sewers within the site boundary. The nearest sewer networks are located in the road networks to the south and west of the site. The site is therefore considered to be at 'low' risk of sewer flooding.

Groundwater Flooding

- 4.17. The GovUK long term flood risk service states that flooding from groundwater is unlikely in this area.
- 4.18. Department for Environment, Food and Rural Affairs (DEFRA) interactive Groundwater Vulnerability Map suggests that the site is at 'low' risk of groundwater flooding.
- 4.19. The development does not involve any below ground construction such as basements and, as such, the groundwater flood risk to the site is therefore considered to be 'low'.

Artificial Sources

- 4.20. Environment Agency data indicates that the site is located to the northwest of an impounded water body called Longmoor Lake. The Environment Agency Risk of Flooding from Reservoir maps show that the eastern section of the site is potentially at risk of flooding if the impoundment were to fail.

- 4.21. The Environment Agency states that a failure incident is very unlikely, as large reservoirs (defined as having over 10,000m³ in volume) are regularly supervised and inspected by reservoir panel engineers. The consequences of a failure of Longmoor Lake reservoir would be significant although as indicated above the probability of such an event occurring is 'very low'.
- 4.22. There are no other sources of impounded water bodies or artificial flood risk sources judged to be a risk to the site. The site is therefore considered to be at 'very low' risk of flooding from artificial sources.

5. Proposed Sustainable Drainage Systems

Existing Surface Water Drainage

- 5.1. The site is approximately 44.9ha and is currently a Greenfield site which comprises of agricultural grassland, sporadic mature tree coverage and parcels of ancient woodland, with Barkham Brook flowing northwards through the site.
- 5.2. Given the present use of the site, it would be considered to have no, or very limited, drainage infrastructure of which none would likely be reused for the proposed development.

Existing Discharge Rates

- 5.3. The planning redline boundary equates to approximately 44.9 ha which is currently completely greenfield with no known formal drainage network. The preliminary site *Concept Layout* splits the site into 4no. parcels and, whilst the site will be managed by a holistic surface water drainage strategy, separate SuDS features are proposed to be provided within the individual parcels. Please see *Figure 5-1* below for the parcel layout.



Figure 5-1: Proposed Concept Masterplan and Parcel Location

Proposed Sustainable Drainage Systems (SuDS)

5.4. The constraints and opportunities for the use of SuDS techniques within the Site is appraised in *Table 5-1* below, adopting the management train approach outlined in CIRIA C753 'The SuDS Manual'.

Table 5-1: C753 SuDS Management Train

Type	Infiltration Devices (Source Control)
Constraints	The development site is underlain by an impermeable geology; London Clay Formation
Opportunities	None. London Clay Formation will not promote infiltration.
Type	Permeable Paving (Source Control)
Constraints	Adoptable roads are not permitted to be constructed of permeable paving due to maintenance complexities. However, shared spaces, such as parking areas, which are not being adopted can be utilised.
Opportunities	Shared spaces could be utilised as lined permeable paving, subject to Master planning.
Type	Rainwater Harvesting (Source Control)
Constraints	The benefits of rainwater harvesting on a specific design storm event cannot be quantified, due to the seasonal availability of storage within the structure.
Opportunities	Rainwater butts to be utilised within individual property boundaries whilst larger scale harvesting methods will be assessed at the detailed design stage.
Type	Swales etc. (Permeable Conveyance)
Constraints	Significant land requirement to accommodate 1:3 side slopes. Largely used for conveyance and treatment as opposed to attenuation.
Opportunities	Opportunities for swales within the larger landscaped areas and potentially roadside to provide additional treatment to the runoff, subject to Master planning.
Type	Bio Retention Systems
Constraints	Limited benefits to attenuation requirements in larger developments.
Opportunities	Roadside tree-pits can be integrated to provide treatment and slow runoff whilst rain gardens can be utilised on an individual property level to provide further benefits.

Type	Living Roofs
Constraints	Limited benefits to attenuation requirements in larger developments and require additional structural integrity. Generally, not considered appropriate on residential properties due to maintenance requirements.
Opportunities	Could be utilised on non-residential buildings throughout the site, such as the care home, to provide ecological and aesthetic benefits.
Type	Detention Basins / Ponds
Constraints	Large land take required to facilitate the necessary side slopes and areas in addition to the required safety requirements.
Opportunities	Area to the north of the SANG is proposed to be utilised with a combination of detention basins / ponds to provide majority of storage for the development site.
Type	Attenuation Tanks (End of Line Treatment)
Constraints	None.
Opportunities	Oversize pipes or geocellular storage could be utilised if required but the preference is for utilisation of larger scale above ground features to provide the main attenuation across the site.

5.5. After consideration of the CIRIA C753 approach the most viable SuDS option for the development site is considered to be a combination of larger storage and conveyance features in the form of swales and detention basins working in coordination with permeable paving and smaller scale rainwater harvesting and bio-retention features located across the site, acting as source control features in accordance with Wokingham Borough Council Requirements. The detailed design of these features is subject to finalisation of the Masterplan.

Updated National Standards for Sustainable Drainage Systems (SuDS)

5.6. The National Standards for Sustainable Drainage Systems (SuDS) was published on 19th June 2025. The new standards aim to help design, maintain and operate SuDS utilised within new developments/infrastructure. In addition, they also aim to promote consistency and help to ensure the long-term performance and resilience of SuDS, whether on Greenfield or Brownfield sites.

5.7. The national standards have been separated into two distinct forms:

- Standard 1: *The Hierarchy Standard* which gives criteria for prioritising the choice of final runoff destination; and
- Standard 2 – 7: *The Fixed Standards* which states the minimum design criteria that all surface water drainage systems should satisfy and how they should be built, maintained and operated.

Standard 1: Runoff Destinations

5.8. In accordance with the new standards, surface water runoff should be disposed of according to the following priorities:

Priority 1: Collected for non-potable use

Priority 2: Infiltrated to ground

Priority 3: Discharged to an above ground surface water body

Priority 4: Discharged to a surface water sewer, or another piped surface water drainage system

Priority 5: Discharged to a combined sewer

5.9. These are assessed in full below.

Priority 1: Collected for Non-Potable Use

5.10. Rainwater harvesting methods provide localised storage of water for re-use across the site as potable water. Large scale measures could potentially be incorporated onto the site with connections to individual properties and for utilisation as irrigation of landscaped areas.

5.11. However, the proposed land usage across the site may make rainwater harvesting impractical give the provision of Local Areas of Play (LAP) and Local Equipped Areas for Play (LEAP) require underground foundations which would limit the available space for underground tanks.

5.12. Furthermore, the density of development within the built phases will limit the space for large scale tanks and therefore may add further constraints with below ground infrastructure; the development will aim to offset this through the use of source control features, such as living roofs and rain gardens, where practicable in accordance with Wokingham SuDS requirements.

5.13. Rainwater butts could be incorporated at an individual property level to be used for localised irrigation purposes. These features, whilst beneficial, are unlikely to provide adequate provisions to manage the entire runoff from the site and are therefore proposed to be used in conjunction with other methods of management lower down the hierarchy.

5.14. Large scale rainwater harvesting tanks should be assessed in further detail as the design of the development progresses beyond the Outline Planning Application.

Priority 2: Infiltrated to Ground

5.15. The site is located on an impermeable bedrock geology; London Clay Formation which would not promote infiltration. Infiltration is therefore not considered an appropriate means of discharge from the site.

Priority 3: Discharged to an Above Ground Surface Water Body

5.16. The Barkham Brook runs through the southern part before heading north along the eastern boundary of the site. The Brook is a tributary to the River Loddon and confluences with the River approximately 3.5km to the north of site.

5.17. There is also a small watercourse is running west to east across the northern part of the site and discharges into the Barkham Brook on the eastern boundary of the site. However, given the level of the watercourse it is considered too shallow to attain a direct connection into this watercourse.