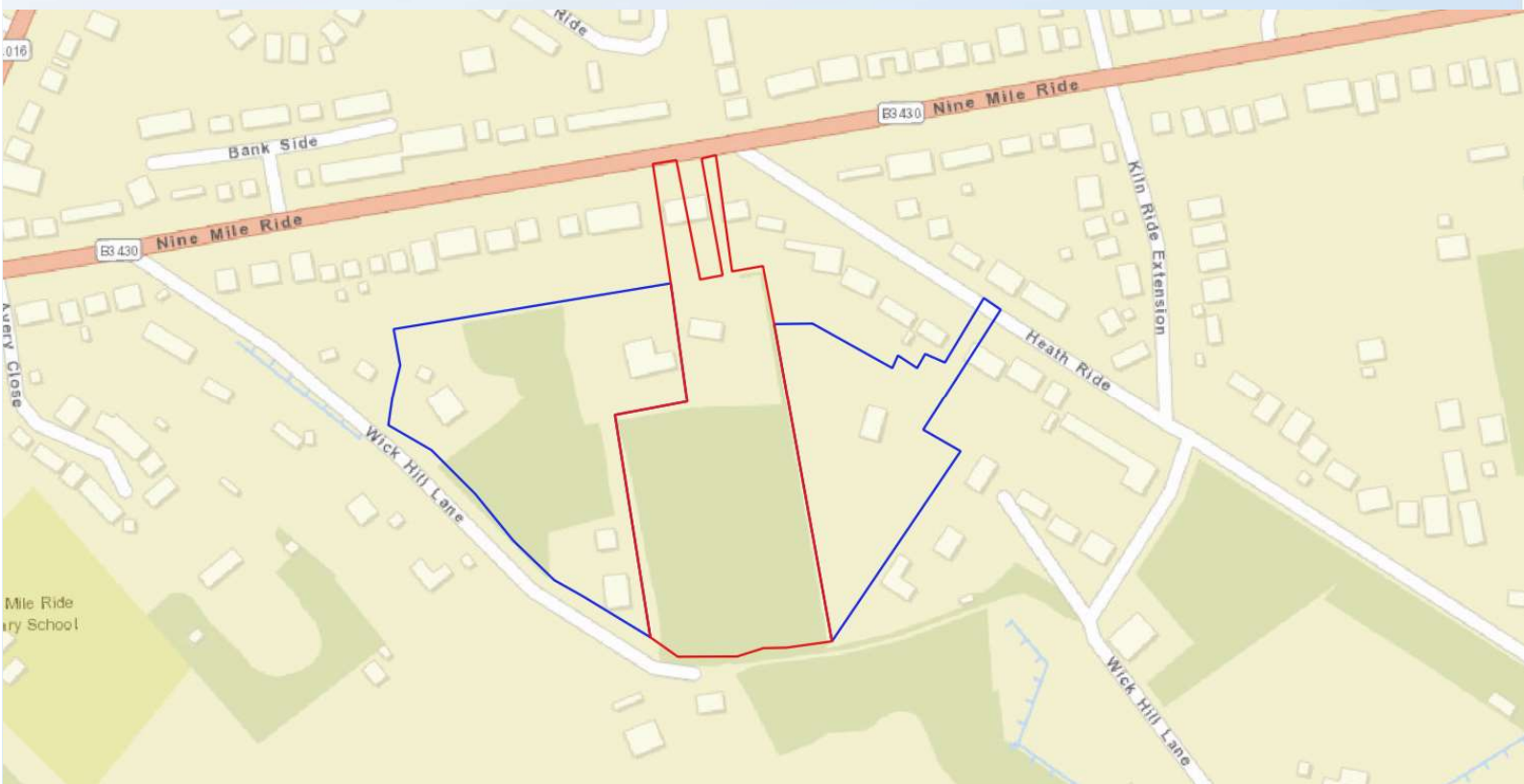




Elivia Homes LTD

LAND AT AND TO THE REAR OF 240 NINE MILE RIDE, FINCHAMPSTEAD

Flood Risk Assessment





ELIVIA HOMES Ltd

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Flood Risk Assessment

REPORT (ISSUE 2) PUBLIC

PROJECT NO. 70114031

OUR REF. NO. 70011-FRA-001

DATE: SEPT 2023



ELIVIA HOMES Ltd

LAND AT AND TO THE REAR OF 240 NINE MILE RIDE, FINCHAMPSTEAD

Flood Risk Assessment

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EXECUTIVE SUMMARY

WSP has been appointed by Elivia Homes Ltd to prepare a project specific Flood Risk Assessment in accordance with the guidelines set out in the National Planning Policy Framework (NPPF) to accompany the Reserved Matters Planning application for the site off Nine Mile Ride.

WSP previously produce the FRA which accompanied the original planning permission for the site obtained under Appeal in December 2022. The fundamental site elements of the original FRA are retained in this document which has been updated to include the revised layout by Elivia Homes and to take account of further site investigation work, particularly soakage tests undertaken since the original FRA was completed in May 2021.

The site is not shown to be within an identified flood risk area and the risk of the Project Site exacerbating flood risk to surrounding properties is low or negligible for all sources with mitigation provided to manage surface water. The Project Site proposes to utilise Sustainable Drainage Systems (SuDS) in accordance with the SuDS Manual¹.

It is anticipated that it will be possible to discharge surface water to ground via infiltration using soakaways. The retained trees and their protection zones and the high water table mean that a system of crated storage is required in rear gardens and below permeable paving to provide sufficient storage volume.

Table 1 – Summary of flood risk from all sources

Source	Risk	Mitigation
Coastal / tidal	Negligible	None required
Fluvial	Negligible	None required
Pluvial / overland	Very low	Surface water drainage strategy
Groundwater	Low	None required
Drainage infrastructure	Very Low	None
Artificial sources	Negligible	None required

¹ CIRIA, 2015, *The SuDS Manual (C753)*



There is no flood risk to require a safe and dry access and egress. Access to the site will be provided via Nine Mile Ride. It is anticipated that the site can be safely developed without increasing flood risk to people and property elsewhere.

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1 INTRODUCTION

1.1 APPOINTMENT AND BRIEF

- 1.1.1. WSP was appointed by Elivia Homes Ltd to produce a Flood Risk Assessment (FRA) and outline Drainage Strategy (DS), covering both surface and foul water discharge, in support of the reserved matters planning application on land at and to the rear of No. 240 Nine Mile Ride, Finchampstead.
- 1.1.2. The reserved matters application of Land at and to the rear of 240 Nine Mile Ride is being sought for 26 dwellings and associated infrastructure, landscaping and demolition of existing dwellings for the site area covering 1.9 ha.

1.2 OVERVIEW

- 1.2.1. This FRA investigates flood risk at the Project Site and establishes, where necessary, the mitigation measures required to ensure the sustainability and safety of the proposed development over its lifetime. For residential use, the development lifetime is assumed to be 100 years.
- 1.2.2. This FRA has been prepared in line with the requirements of the National Planning Policy Framework (NPPF); the Environment Agency's Standing Advice²; and in consultation with the Wokingham Borough Council (WBC) as Lead Local Flooding Authority (LLFA), Thames Water (TW) and the Environment Agency (EA). Climate change predictions have been considered over the lifetime of the proposed development and as such, the rainfall intensity increase as a result of climate change has been taken as 40%.
- 1.2.3. The following tasks have been undertaken during the preparation of this FRA:
 - A desk study and data research including a review of relevant national and local policies and guidance (a summary is provided in Section 2);
 - Consultation with regulatory bodies and third parties (copies of correspondence exchanged with the EA, WBC and TW are provided in **Appendix A**);
 - An assessment of flood risk to the proposed development from the following sources:
 - Tidal and Coastal, Fluvial, Pluvial, Groundwater, Sewers; and Man-made infrastructure.
 - An assessment of the proposed development's effect on flood risk of the aforementioned sources;
 - An estimate of surface water flows based on current conditions at the Project Site and existing drainage systems; and;
 - An estimation of post-development surface water flows and attenuation requirements based on the development proposals and results from on-site ground investigations.

2 POLICY AND GUIDANCE

2.1 NATIONAL PLANNING POLICY / GUIDANCE

NATIONAL PLANNING POLICY FRAMEWORK

2.1.1. The NPPF requires that an FRA should be undertaken:

- For all developments greater than 1 Hectare (ha) in size in Flood Zone 1;
- All proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has a critical drainage problem; and,
- Where proposed development or a change of use (e.g. from commercial to residential) to a more vulnerable class may be subject to other sources of flooding (e.g. surface water drains, reservoirs).

2.1.2. The Environment Agency's Flood Map for Planning indicates that the Project Site is located within Flood Zone 1. The proposed development covers an area of approximately 1.92ha. Consequently, an FRA would be required to support a planning application for the Project Site in order to:

'demonstrate that the Project Development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall'.

2.1.3. The NPPF also requires development to be allocated towards areas at lowest risk of flooding (the Sequential Test), and if necessary, the development proposals would be subject to satisfying the requirements of the Exception Test.

FLOOD RISK AND COASTAL CHANGE PLANNING GUIDANCE

2.1.4. The NPPF is supported by the National Planning Practice Guidance (PPG). The PPG, in relation to flood risk, states that an FRA must outline the following:

- Whether a proposed development is likely to be affected by current or future flooding from any source;
- Whether it will increase flood risk elsewhere; and,
- Whether the measures proposed to deal with these effects and risks are appropriate.

2.1.5. The PPG states that the lifespan of residential development should be considered as 100 years and therefore the appropriate climate change allowances have been considered for this timescale.

2.1.6. Within Table 2 (Flood Risk Vulnerability Classification) of the *Flood Risk and Coastal Change* of the PPG (Communities and Local Government, 2014), the Project Site would be classified as *'More Vulnerable'* (i.e. residential).

2.1.7. Table 3 (Flood Risk Vulnerability and Flood Zone Compatibility) of the PPG, states that More Vulnerable development is appropriate in Flood Zones 1. The Project Site satisfies the requirements of the Sequential Test and the Exception Test does not apply.

FLOOD RISK ASSESSMENTS: CLIMATE CHANGE ALLOWANCES (FEBRUARY 2017)

2.1.8. In February 2016, the Environment Agency released *'Flood risk assessments: climate change allowances'* guidance to support the NPPF (updated in February 2017). The climate change allowances relevant to the Project Site are summarised in **Table 2-1** below.

Table 2-1 - Environment Agency Climate Change Allowances, Thames River Basin District

Climate Change Estimate	for the '2020s' (2015 to 2039)	for the '2050s' (2040 to 2069)	for the '2080s' (2070 to 2115)
Fluvial Flows: Upper End (90th Percentile)	+ 25% (peak river flow)	+35% (peak river flow)	+70% (peak river flow)
Fluvial Flows: Higher Central	+15% (peak river flow)	+25% (peak river flow)	+35% (peak river flow)
Fluvial Flows: Central	+10% (peak river flow)	+15% (peak river flow)	+25% (peak river flow)
Rainfall: Upper End	+10% (peak rainfall intensity)	+20% (peak rainfall intensity)	+40% (peak rainfall intensity)
Rainfall: Central	+5% (peak rainfall intensity)	+10% (peak rainfall intensity)	+20% (peak rainfall intensity)

NON-STATUTORY SUSTAINABLE DRAINAGE TECHNICAL STANDARDS (MARCH, 2015)

- 2.1.9. The Non-Statutory Sustainable Drainage Technical Standards document sets out the technical standards for sustainable drainage systems (SuDS).
- 2.1.10. The standards state that for Greenfield developments the peak runoff rate from the development to any highway drain, sewer or surface water body should never exceed the peak Greenfield runoff rate for the same event.
- 2.1.11. For Greenfield developments, where reasonably practicable, the runoff volume from the development to any highway drain, sewer or surface water body should not exceed the Greenfield runoff volume for the event that has a 1% chance of occurring in any given year. If this is not practical, the runoff volume must be discharged at a rate that does not increase flood risk.
- 2.1.12. The drainage system must be designed so that unless an area is designated to hold and/or convey water as part of the design:
 - Flooding does not occur on any part of the site for events up to and including rainfall events with a 3.3% chance of occurring in any given year (1 in 30-year return period); and,
 - Flooding does not occur during rainfall events with a 1% chance (1 in 100-year return period) of occurring in any given year, in any part of a building or utility plant susceptible to water.
- 2.1.13. The design of the proposed development must ensure that where reasonably practicable flows resulting from a rainfall in excess of a 1% annual probability rainfall event are managed in exceedance routes that minimise risks to people and property.
- 2.1.14. Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity.

The mode of construction of any connection with an existing sewer or drainage system must be such that the making of the connection would not be prejudicial to the structural integrity and functionality

of the system. Any drainage which does occur must be minimised and restricted before the drainage system is classified as complete.

2.2 REGIONAL GUIDANCE

THAMES RIVER BASIN MANAGEMENT PLAN (2015)

- 2.2.1. The purpose of the *Thames River Basin Management Plan* is to provide a framework for protecting the water environment. The Plan assesses the pressures facing the basin and sets out potential actions to address them.
- 2.2.2. Wokingham Borough is located within the Thames River Basin. The Thames River Basin District covers over 16,200 km². There are 17 management catchments that make up the river basin district, which include many interconnected rivers, lakes, groundwater and coastal waters.
- 2.2.3. The priority river basin management issues to tackle in this catchment are the negative impacts on habitats and ecological diversity caused by:
- The physical modification of watercourses;
 - Pollution from wastewater;
 - Pollution from towns, cities and transport;
 - Changes to the natural flow and level of water;
 - Negative effects of invasive and non-native species; and,
 - Pollution from rural areas.

THAMES CATCHMENT FLOOD MANAGEMENT PLAN (2009)

- 2.2.4. The River Thames Catchment Flood Management Plan (CFMP) was published in December 2009 by the Environment Agency and sets out the flood risks, the sources of these risks and any associated concerns or issues in the Thames catchment from rivers, groundwater, surface water and tidal flooding. The CFMP establishes a number of flood risk management policies which will deliver sustainable flood risk management for the long term.
- 2.2.5. The Project Site falls into Sub-area 1 “Towns and villages in open floodplain (north and west) of the CFMP between the Emm Brook and the River Loddon. Sub-area 1 (Addlestone Bourne, Emm Brook and The Cut) has a total of 1170 properties and sub-area 1 (Loddon) has a total of 860 properties, exposed to a 1% annual risk of flooding from river. The proposed actions to implement the preferred policy are:
- Maintain the existing capacity of the river systems in developed areas to reduce the risk of flooding from more frequent events;
 - Identify locations where the storage of water could benefit communities by reducing flood risk and providing environmental benefits (by increasing the frequency of flooding) and encourage flood compatible land uses and management;
 - Work with Local Planning Authorities (LPA) to retain the remaining floodplain for uses that are compatible with flood risk management and put in place policies that lead to long-term adaptation of urban environments in flood risk areas;
 - Continue to increase public awareness, including encouraging people to sign-up for the free ‘Floodline Warnings Direct’ service; And,

- Help communities and local authorities manage local flood risk. This could include flood resilience, community flood plans that identify vulnerable people and infrastructure and community-based projects.

2.3 LOCAL POLICY

WOKINGHAM BOROUGH COUNCIL DRAFT LOCAL PLAN (2020)

- 2.3.1. Wokingham Borough Council has been preparing new planning policies to guide development in the borough to 2036. The local plan update (LPU) will replace the existing Core Strategy (2010) and Managing Development Delivery Local Plan (2014), and will put in place an updated spatial strategy and set of planning policies to manage development up to the year 2036. The plan is expected to be adopted by the end of 2025.
- 2.3.2. Policy NE8: Development and Flood Risk (from all sources) 1. All sources of flood risk, including historic flooding, must be taken into account at all stages of the development and to the appropriate degree at all levels in the planning application process to avoid inappropriate development in areas at risk of flooding. Proposals must be consistent with national policy and guidance and demonstrate how they have used the Strategic Flood Risk Assessment (SFRA) to determine the suitability of the proposal.
- 2.3.3. Development proposals in Flood Zones 2 or 3 must take into account the vulnerability of proposed development.
- 2.3.4. Development must be guided to areas of lowest flood risk, in the first instance, by applying the sequential approach taking into account the effects of climate change and flooding from all sources. Development should ensure flood risk is not worsened for the application site and elsewhere, and ideally that betterment of existing conditions is achieved.
- 2.3.5. The sequential test will not be required for minor residential extensions (<250m²), alterations that do not increase the build footprint, householder development or changes of use where the change does not lead to an increase in vulnerability.
- 2.3.6. In exceptional circumstances, new development in areas of flood risk will be supported where it can be demonstrated that:
- The development provides wider sustainability benefits to the community that outweigh flood risk
 - The development will:
 - Be safe for its lifetime, taking account of the vulnerability of its users
 - Not increase flood risk in any form elsewhere and, where possible, will reduce flood risk overall
 - Incorporate flood resilient and resistant measures into the design
 - Appropriate evacuation and flood response procedures are in place to manage the residual risk associated with an extreme flood event.
- 2.3.7. Where required, suitable and appropriately detailed flood risk information will need to accompany a planning application. A site-specific Flood Risk Assessment (FRA) is required for:
- All proposals in areas of known historic flooding from all sources
 - Where there is evidence of a risk from all sources of flooding identified in the Strategic Flood Risk Assessment

- 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.

2.3.8. Development proposals must ensure surface water arising from the proposed development, including the impact of climate change, is managed in a sustainable manner. In accordance with the council's Local Validation Requirements, this must be demonstrated through either a site-specific Flood Risk Assessment, or Surface Water Drainage Strategy.

WOKINGHAM DEVELOPMENT PLAN: ADOPTED MANAGING DEVELOPMENT DELIVERY PLAN (2014)

- 2.3.9. The Managing Development Delivery (MDD) Plan forms part of the Wokingham Borough Development Plan.
- 2.3.10. Policy CC09 – Development and Flood Risk, states that all sources of flood risk should be considered during the planning application process. Proposals must be consistent with the guidance in the NPPF and the accompanying NPPF Technical Guidance and should demonstrate how the Strategic Flood Risk Assessment (SFRA) has been used to determine the suitability of the proposal.
- 2.3.11. Development should be guided towards areas of the lowest flood risks by applying the sequential approach. Development proposals within Flood Zones 2 or 3 must ensure that flood risk is not increased due to the Project and must take into account the vulnerability of the Proposed Development.
- 2.3.12. Development will only be considered in areas of flood risk if it can be demonstrated that:
- The development provides wider sustainability benefits to the community that outweigh flood risk;
 - The development will be safe for its lifetime, taking account of the vulnerability of its users; and,
 - The development will not increase flood risk and, where possible, will reduce flood risk overall.
- 2.3.13. Policy CC10 – Sustainable Drainage provides specific requirements for the provision of drainage in any new development. Surface water arising from the Proposed Development must be managed in a sustainable manner, taking into account the effects of climate change.
- 2.3.14. Where practically possible, development proposals should incorporate SuDS, which must be designed to meet the long-term needs of the development. If a development discharges surface water into a public sewer, adverse impacts to the public sewerage network serving the development should not be experienced.
- 2.3.15. Policy SAL03 – allocates the Propose Development site (id FI140) as part of the allocated reserve housing sites that should be used solely for residential development purposes.

WOKINGHAM BOROUGH CORE STRATEGY DEVELOPMENT PLAN DOCUMENT (ADOPTED 2010)

- 2.3.16. The Wokingham Borough Core Strategy Development Plan sets out the vision for how the development of the Borough in the period to 2026 will be delivered and the planning policies that will

be used to achieve this. It is one of the Local Plans for Wokingham Borough and forms part of the Wokingham Borough Development Plan.

- 2.3.17. Policy CP1 – Sustainable Development, states that planning permission will be granted to developments which meet the following desirable requirements:
- Limits any adverse effects on water quality, including groundwater;
 - Provides adequate drainage;
 - Avoids increasing (and where possible reduces) risks of or from all forms of flooding (including from groundwater); and,
 - Incorporates facilities for recycling of water and management of flood risk from all sources.
- 2.3.18. Policy CP3 – General Principles for Development states that planning permission will be granted to developments that have no detrimental impact upon the landscape, geological features or watercourses.
- 2.3.19. Policy CP4 – Infrastructure Requirements states that planning permission will not be granted unless appropriate arrangements for the improvement or provision of infrastructure, services, community and other facilities, required for the development, are agreed.

2.4 LOCAL GUIDANCE

WOKINGHAM BOROUGH COUNCIL: WOKINGHAM BOROUGH STRATEGIC FLOOD RISK ASSESSMENT (2020)

- 2.4.1. The aim of the Strategic Flood Risk Assessment (SFRA) is to collate and analyse the most up-to-date flood risk information from all sources, to provide an overview of flood risk across Wokingham.
- 2.4.2. The WBC Strategic Flood Risk Assessment (SFRA) was prepared in accordance with Planning Policy Statement (PPS) 25 (this guidance was replaced by NPPF in 2012), Development and Flood Risk, which requires that:
- *“Local Planning Authorities (LPAs) prepare an SFRA in consultation with the Environment Agency. The primary purpose of the SFRA is to determine the variations in flood risk across the Borough.”*
- 2.4.3. The SFRA is a strategic document and forms a key part of the evidence base for the Wokingham Borough Council Local Development Framework (LDF).
- 2.4.4. The SFRA identifies zones of flood risk from all sources, in order to:
- Assist in the allocation of land for development;
 - Assist in development decision making purposes;
 - Develop emergency plans; and,
 - Highlight the requirement for a more detailed FRA where necessary.
- 2.4.5. It also provides details of the defences and structures in place to reduce the risk of flooding and promotes the use of SuDS in future surface water management.
- 2.4.6. Flood history shows that, within Wokingham Borough Council, approximately half of all flooding was associated with main rivers (e.g. Thames, Loddon, Twyford Brook and Emm Brooke).
- 2.4.7. There are a few historical groundwater flooding incidents in the Wokingham Borough. Between 2000 to 2001, there were nine incidents of groundwater flooding; however, none of these were within the Project Site area.

- 2.4.8. Surface water flooding is not mentioned within the vicinity of the Project Site.

WOKINGHAM BOROUGH COUNCIL: PRELIMINARY FLOOD RISK ASSESSMENT (2011)

- 2.4.9. WBC's Preliminary Flood Risk Assessment (PFRA) was produced to satisfy the requirements of the Flood Risk Regulations 2009 and the EU Flood Directives. The document is a strategic document which identifies, collates and assesses information on flood risk, and identifies areas where additional investigation may be necessary.
- 2.4.10. The PFRA is the starting point for a more detailed local flood risk management strategy and will be updated as floods are identified, and flooding mechanisms and consequences are understood.

WOKINGHAM BOROUGH COUNCIL: LOCAL FLOOD RISK MANAGEMENT STRATEGY (LFRMS) (2015)

- 2.4.11. The LFRMS sets out the roles and responsibilities of flood risk management partners within the Borough highlighting the position of the Wokingham Borough Council (WBC) as the Lead Local Flood Authority under the Flood and Water Management Act 2010.
- 2.4.12. The overall aim of the Wokingham Borough Council's LFRMS is to produce a plan to reduce and manage flood risk in a way that will benefit people, property and the environment. The LFRMS highlights the areas with the highest risk of flooding.
- 2.4.13. WBC has experienced a number of flood events in recent years. It is situated within the Thames river basin district and a number of main rivers run through the Borough, which discharge directly and indirectly into the River Thames. These include the River Thames and its tributary the Foudry Brook, the River Loddon and its tributaries, the Twyford Brook, Emm Brook, Barkham Brook and the River Blackwater. There are also seven major reservoirs ($\geq 25,000\text{m}^3$ of water) located in the Borough which pose a residual flood risk.
- 2.4.14. Wokingham has suffered from a number of recorded large-scale flood events in recent years, these being:
- 1993;
 - 2000;
 - 2003;
 - 2007; and,
 - 2014.

None of these flood events affected the Project Site.

- 2.4.15. The LFRMS focuses on local flood risk and explains the ways in which WBC will ensure flood risk is managed in an integrated and effective way and provides a single consistent reference point for flood risk management in the Borough.

WOKINGHAM BOROUGH SUSTAINABLE DESIGN AND CONSTRUCTION SUPPLEMENTARY PLANNING DOCUMENT (2010)

- 2.4.16. The Sustainable Design and Construction Supplementary Planning Document (SPD) provides an up to date and comprehensive approach to considering sustainable design and construction within new development that should be consulted in all new planning applications.

- 2.4.17. Section 12 of the report addresses the issue of Flood Risk Management and outlines the various resilience and resistance measures to be considered within planning applications, with an emphasis on SuDS.
- 2.4.18. Sustainability Issue 5 - Flood Risk Management outlines the requirements for new developments to be as flood resilient as appropriate. Any new development which experiences flood risk requires the submission of an FRA and DS, taking into account climate change.

WOKINGHAM SUDS STRATEGY (2017)

- 2.4.19. The Wokingham SuDS strategy, produced by WBC, supplements the sustainable development and sustainable drainage system policies provided in the Core Strategy and the MDD Local Plan.
- 2.4.20. It outlines the long-term vision for the use of SuDS within WBC and identifies how they should be implemented and maintained. It also sets out the opportunities and constraints to be considered when designing SuDS and provides guidance for the most appropriate locations for SuDS schemes to be executed.

3 BACKGROUND

3.1 PROJECT LOCATION

- 3.1.1. The Project Site is located on land at and to the rear of No. 240 Nine Mile Ride, Finchampstead, National Grid Reference SU 80166 64867 and the nearest postcode is RG40 3QA.

3.2 PROJECT DESCRIPTION AND DEVELOPMENT PROPOSALS

- 3.2.1. The Project Site covers an area of 1.9ha and consists of both brownfield and greenfield components. Current land use for the greenfield component is shown on aerial imagery as woodland. Existing development will not be retained and incorporated into the Proposed Development. Consequently, for the purpose of this FRA, the site will be assessed as greenfield.
- 3.2.2. The Proposed Development comprises of 26 residential units and associated infrastructure. A copy of the current masterplan is attached to this FRA as **Appendix B**.

3.3 TOPOGRAPHY

- 3.3.1. A site-specific topographical survey has been undertaken for much of the Project Site area. Where detailed levels have not yet been undertaken, these have been supplemented by Light Detection and Ranging (LiDAR) data that has been obtained from the Environment Agency. The topographical surveys covering the Project Site are attached to this FRA as **Appendix C**.
- 3.3.2. The site is located in a topographically elevated area which generally falls from south to north, towards Nine Mile Ride. The maximum level in the southern part of the developable area is approximately 83.7m AOD, whilst the minimum level at the access road to Nine Mile Ride to the north is approximately 74.7m AOD.

3.4 GEOLOGY AND HYDROGEOLOGY

- 3.4.1. British Geological Survey (BGS) 1:50,000 scale On-shore Digital Mapping (British Geological Survey, 2020) shows the majority of the Project Site to be underlain by Windlesham Formation - Sand, Silt and Clay and Camberley Sand Formation - Sand.
- 3.4.2. The bedrock of the Project Site (Bracklesham Group and Barton Group) is classified as a Moderately Productive Aquifer (Variable multi-layered aquifer locally important).
- 3.4.3. There are no superficial deposits at the Project Site. An extract of BGS bedrock geology and superficial geology mapping is provided in **Appendix D**.
- 3.4.4. Environment Agency mapping (Environment Agency, 2020) does not show the Project Site to be underlain by a Source Protection Zone (SPZ). An SPZ area is located near Winnersh, approximately 6km north of the site.
- 3.4.5. A Geo-Environmental ground investigation was undertaken by Omnia in May 2023 this include, boreholes and trial pit excavations accompanied by geotechnical and soakage testing. The investigation confirmed the BGS information with Camberley sands identified in the central southern areas of the site, with clays and sands of the Windlesham formation in the north of the site. The full site investigation report is enclosed in Appendix G.

3.5 IDENTIFICATION OF EXISTING WATERCOURSES

- 3.5.1. There are no known watercourses existing on site or within the vicinity of the site.

3.6 EXISTING SEWER AND DRAINAGE INFRASTRUCTURE

- 3.6.1. Thames Water asset records indicate that there are no surface water or combined sewers in the area. Consequently, the preferred drainage method, is likely be to discharge to ground via infiltration using soakaways.
- 3.6.2. Foul sewers run along the north, within Nine Mile Ride, southwest, within Wich Hill Lane and northeast within Heath Ride.

3.7 HISTORIC FLOOD RECORDS

- 3.7.1. Thames Water has confirmed that they hold no records of flooding near the application site.
- 3.7.2. Historic flood records available in the Wokingham SFRA indicate that there have been no instances of flooding near the Project Site.
- 3.7.3. Environment Agency correspondence indicates that they hold no records of flooding incidents for the area, the area is not covered by an existing hydraulic model, and that the Project Site is not located within a critical drainage area.
- 3.7.4. An inquiry was made to Wokingham Borough Council pertaining to historic flood incidents in the area, however a response was not received to date on the matter.

4 OVERVIEW OF FLOOD RISK

4.1 INTRODUCTION

- 4.1.1. The following section provides an overview of flood risk to the Project Site, along with risk arising to and from the development. An assessment has been undertaken for each possible source that could affect the development in accordance with the PPG.
- 4.1.2. Flood risks have been qualitatively assessed on the following basis:
- Negligible risk (e.g. coastal flood risk posed to inland areas);
 - Very Low risk (e.g. Flood Zone 1 or <0.1% annual probability of flooding from surface water (1 in 1,000-year event));
 - Low risk (e.g. Flood Zone 2 or between 0.1% and 1.0% annual probability of flooding from surface water (1 in 100 and 1 in 1,000-year events));
 - Medium risk (e.g. Flood Zone 3a or between 1.0% and 3.3% annual probability of flooding from surface water (1 in 100 to 1 in 30-year events)); and,
 - High risk (e.g. Flood Zone 3b or >3.3% annual probability of flooding from surface water (1 in 30-year event)).

4.2 FLOODING FROM COASTAL AND TIDAL SOURCES

- 4.2.1. Coastal / tidal flooding occurs when sea levels rise above the level of the land or beyond the operational level of flood defences.
- 4.2.2. The Environment Agency Flood Map for Planning shows that the Project Site is not located with the proximity of a tidal section of watercourse or the coast. Consequently, the risk of flooding posed to the Project Site from this source is **Negligible**.
- 4.2.3. As the Project Site is not considered to be at risk of coastal / tidal flooding, no mitigation measures will be required as part of the project and the development will not increase tidal flood risk elsewhere.

4.3 FLOODING FROM FLUVIAL SOURCES

- 4.3.1. Fluvial flooding occurs when flows within watercourses exceed the capacity of the watercourse causing out of bank flows.
- 4.3.2. The Environment Agency's current *Flood Map for Planning*, accessed in May 2021 and reproduced in **Appendix E**, shows that the Project Site lies entirely within Flood Zone 1. Flood Zone 1 is classified as those areas with an annual probability of flooding from rivers of less than 0.1%.
- 4.3.3. The risk of flooding from fluvial sources to and from the Project Site is therefore considered **Negligible**.

4.4 FLOODING FROM PLUVIAL / OVERLAND FLOW SOURCES

- 4.4.1. During extreme storms the ground may become saturated and drains and sewers which carry away surface water may not be able to accommodate the overland flows that arise from such conditions or may become blocked with debris. This may lead to surface water flooding.
- 4.4.2. The Environment Agency's Risk of Flooding from Surface Water mapping, accessed in May 2021 and reproduced in **Appendix E**, indicates that the main risk of flooding from surface water to the Project Site is predominately **Very Low**.

- 4.4.3. By developing the Project Site, the risk of pluvial / overland flows from the proposed development could increase. This is due to an increase in impermeable surfaces covering the Project Site, which will result in greater volumes and rates of surface water discharging from the site. The risk of the proposed development exacerbating pluvial / overland flood risk prior to mitigation is therefore considered to be Medium prior to the implementation of mitigation.
- 4.4.4. The proposed surface water drainage strategy (SWDS) for the proposed development will incorporate sufficient attenuation to restrict run-off from the proposed development to as close to existing Greenfield rates as reasonably practicable, in accordance with local policy and the non-statutory technical standards for sustainable drainage. The SWDS will therefore mitigate the potential for the proposed development to exacerbate flood risk to and from pluvial / overland flow sources. The resultant risk from the proposed development will be **Very Low**.
- 4.4.5. Further information on site-specific flood risk management measures to mitigate this risk is provided in Section 5.

4.5 FLOODING FROM GROUNDWATER SOURCES

- 4.5.1. Groundwater flooding occurs when water stored below ground reaches the surface. It is commonly associated with porous underlying geology, such as chalk, sands and gravels.
- 4.5.2. The Project Site is underlain by Windlesham Formation - Sand, Silt and Clay and Camberley Sand Formation - Sand. This is classified as moderately productive strata which are rock layers or drift deposits with some permeability that has local significance for water supply or river base flow and is classified as a Moderately Productive Aquifer (variable multi-layered aquifer locally important), by the Environment Agency.
- 4.5.3. As the Project Site is topographically elevated above the surrounding area, groundwater emergence would not affect the site in any significant way and basements, or underground car parks are not proposed. The risk of flooding posed to the proposed development from groundwater sources is considered to be **Low**.
- 4.5.4. A ground investigation should be undertaken to assess the possibility of perched aquifers in the area, as well as the presence of made ground within the Project Site boundary.

4.6 FLOODING FROM SEWER AND DRAINAGE INFRASTRUCTURE SOURCES

- 4.6.1. Thames Water have confirmed they do not hold any records of incidents of flooding as a result of surcharging public sewers within the Project Site. Full correspondence with Thames Water is provided in **Appendix A** for reference.
- 4.6.2. From the record plans there are no public surface water sewers near or on the Project Site. Furthermore, the site sits topographically elevated in relation to the existing roads, where foul sewer infrastructure exists, as can be observed from the TW asset records in **Appendix A** and the topographic survey provided in **Appendix C**. As a result, the risk of flooding from sewer and drainage infrastructure posed to the Project Site is considered likely to be **Very Low**.

4.7 FLOODING FROM ARTIFICIAL SOURCES

- 4.7.1. The Environment Agency's flood mapping, accessed in May 2021, indicates that the site is not within the extent of reservoir inundation, and there are no embanked canals in the area. The risk of flooding posed to the Project Site from this source is likely to be **Negligible**.

5 SURFACE WATER DRAINAGE STRATEGY

5.1 EXISTING DRAINAGE REGIME

- 5.1.1. Thames Water asset records (**Appendix A**) indicate that there are no public surface water sewers in the immediate vicinity of the site as, although private drainage will exist and serve a few of the surrounding properties. However, these are anticipated to be private and localised infiltration systems. As such, and although unconfirmed, it is expected that discharge to ground via infiltration is the existing drainage regime for the properties surrounding the site.

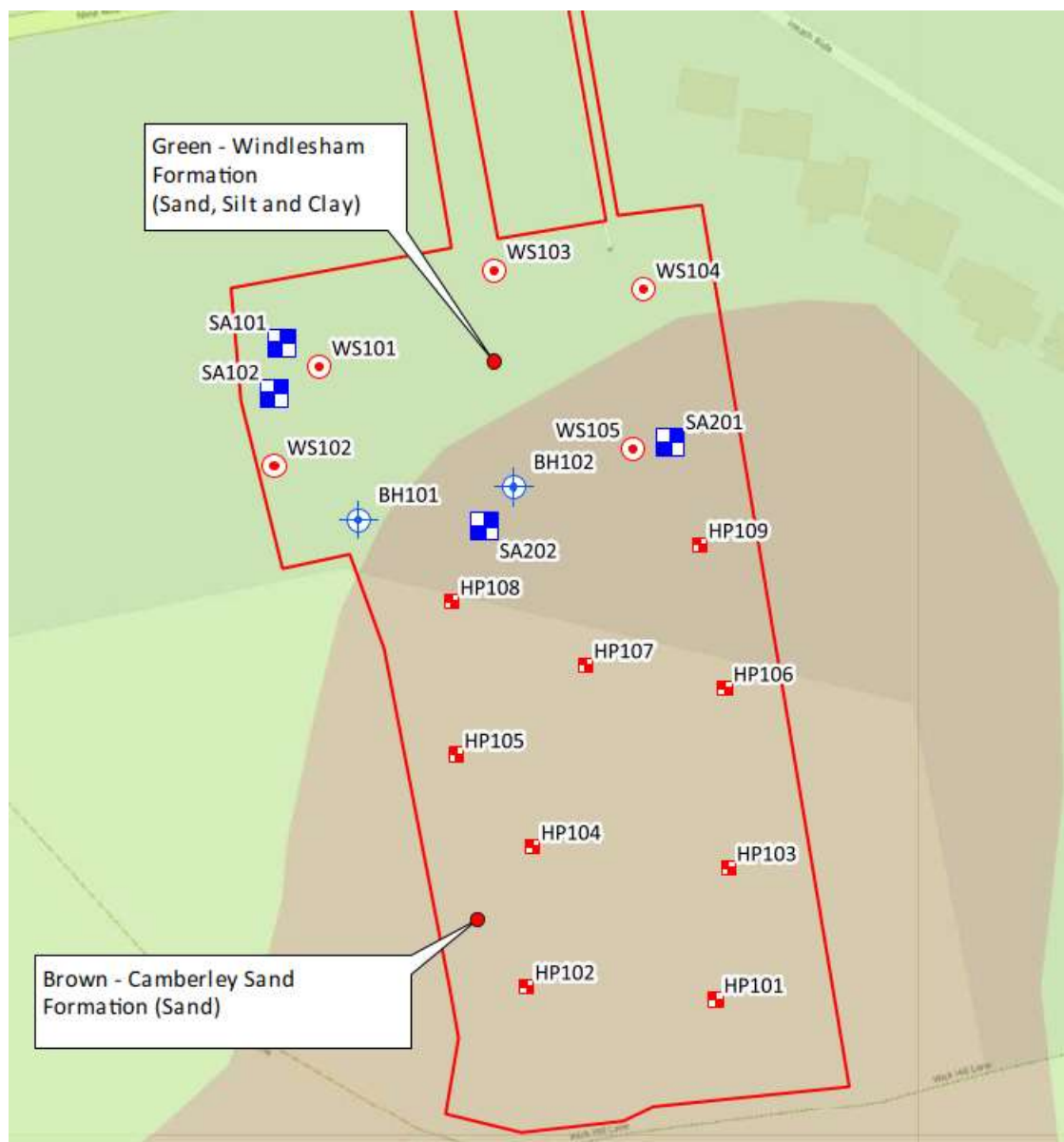
5.2 PROPOSED DRAINAGE REGIME

- 5.2.1. The proposed surface water drainage strategy seeks to demonstrate that the Project Site can be drained in a sustainable manner, commensurate with local and national policy.
- 5.2.2. The NPPF requires that flood risk to land and property is not increased as a result of development upstream. The Non-Statutory Statutory Technical Standards for Sustainable Drainage Systems state that peak runoff rates should be limited to greenfield runoff rates, of runoff from the site should not exceed the greenfield runoff volume for the same event. Exceedance routes should be shown to not impact the safety of property (existing or proposed).
- 5.2.3. Part H of the Building Regulations: Drainage and Waste Disposal establishes a hierarchy for surface water disposal, which encourages a SuDS approach. This hierarchy stipulates that surface water runoff not collected for reuse must be discharged to one or more of the following in order of priority:
- Discharge into ground (infiltration); or, where not reasonably practicable,
 - Discharge to a surface water body; or, where not reasonably practicable,
 - Discharge to a surface water sewer, highway drain, or another drainage system; or, where not reasonably practicable,
 - Discharge to a combined sewer

5.3 SURFACE WATER DRAINAGE STRATEGY

- 5.3.1. The proposed surface water drainage strategy is summarised below. The outline surface water drainage strategy drawings have been included within **Appendix F**.
- 5.3.2. In line with the drainage hierarchy and based on existing geology at the Project Site (extract available in **Appendix D**) the preferred method for surface water management is to discharge to ground via infiltration in using soakaways.
- 5.3.3. An initial Omnia geotechnical investigation included the excavation of trial pits with falling head soakage tests undertaken in accordance with BRE Digest 365, this revealed the following soakage rates.

Omnia Location Ref:	Test No.	Test Duration (Mins)	Test Interval (m bgl)	Geological Formation	Permeability Rate (k)
					m/s
WS102	Test 1	358	0.60-2.60	Windlesham Formation	5.43×10^{-6}
WS103	Test 1	386	1.60-3.00	Windlesham Formation	N/A
WS105	Test 1	43	0.60-1.80	Camberley Sand Formation	5.17×10^{-6}
	Test 2	60			4.23×10^{-6}
	Test 3	60			3.04×10^{-6}



A review of Table 4-8 indicates that the results of the falling head permeability tests yielded permeability rates of 5.43×10^{-6} m/s for the Windlesham Formation (WS102). A rate was not calculated for WS103 due to slow drainage during the testing period. The results of the falling head permeability tests yielded permeability rates ranging from 3.04×10^{-6} to 5.17×10^{-6} m/s for the Camberley Sand Formation (WS105).

- 5.3.4. Based on the above infiltration rate, for a 1 in 100-year rainfall event, including a 40% increase in intensity as a result of climate change over the 100 year lifetime of a residential development, the volume of water that needs to be attenuated is 800m^3 (calculated using the site layout accompanying this report).
- 5.3.5. The above storage value is based on the following assumptions:
- Infiltration testing for the site will achieve rates of at least 2×10^{-6} m/s;
 - Infiltration will not be discounted due to land contamination;
 - The volumetric runoff coefficient (Cv) was set to 1 for both summer and winter storms;
 - The M5-60 value selected for the site is 18.5;
 - The developable area as measured on the masterplan is 1.0ha, and consequently, the percentage of impermeable surface was considered to be 0.65ha (65%);
 - The assumed time-area diagram for the site is 4 minutes.
 - Attenuation volumes were sized to be provided in multiple localised structures to give a total estimate of the volume required.
- 5.3.6. The drainage strategy proposes that the access road and driveways at the front of the houses are constructed with permeable paving with attenuation and infiltration provided below the paving. The roofs facing the rear are drained to a series of attenuation and soakaways in the rear gardens.
- 5.3.7. The discharge of water across the Project Site will reflect existing topography and current surface water discharge regime.

5.4 EXCEEDANCE FLOWS

- 5.4.1. The management of exceedance flows will be incorporated into the design of the open spaces within the development and other areas so that any flows exceeding the capacity of the surface water network (in excess of a 1 in 100 year event with a 40% climate change allowance) will be directed through open space and the road network away residential properties.

5.5 WATER QUALITY MANAGEMENT

- 5.5.1. In accordance with current best practice guidance and with a view to protecting the quality of the water environment, the proposed surface water drainage system incorporates soakaways that discharge to ground via infiltration. The Geo Environmental investigation revealed a high water table in both the Camberley Sands and Windlesham formation with depths varying from 1.8m to 0.6m. Where practical a minimum 300mm filtration media will be provided beneath the invert level of the soakaways as well as 1.0m “freeboard” above any groundwater beneath the soakaways serving minor roads and car

parking areas. Where soakaways are serving roof areas only this freeboard may be reduced to a minimum 500mm where necessary. The following summarises the risk and treatment options on site.

Table 5.1 – Mitigation Indices – Residential Areas - houses

SuDS Feature	Mitigation Indices			Compliance
	TSS	Metals	Hydrocarbons	
Pollution Hazard Level (Very Low)	0.2	0.2	0.05	
Option – Private soakaway	0.4	0.4	0.4	yes
Additional features required	no	no	no	

Table 5.2 – Mitigation Indices – Residential Areas – minor roads and car parking

SuDS Feature	Mitigation Indices			Compliance
	TSS	Metals	Hydrocarbons	
Pollution Hazard Level (Low)	0.5	0.4	0.4	
Option – Soakaway	0.4	0.4	0.4	no
Additional Feature required	yes	no	no	
Second level SuDS (Table 26.3) – Filter Drain	0.5 * 0.4	0.5 * 0.4	0.5 * 0.4	
TOTALS (lowest option)	0.60	0.60	0.60	yes

5.5.2. This will ensure satisfactory levels of treatment of collected runoff in order to reduce the pollution indices in line with the CIRIA SuDS Manual Chapter 26, prior to discharge from the Project Site to the underlying soils. The “Filter Drain” is to be lined to act as a pre-filter to the soakaways. This feature could be replaced by a suitably design proprietary system to capture, collect and (if possible) treat Total Suspended Solids.

5.5.3. The proposed layout shows that shallow soakaways constructed using a crated void system will be used to drain dwelling roofs in the rear gardens. Front facing roofs, parking areas and the access road will be formed with permeable paving, underlain with a shallow crates to provide sufficient storage above the water table.

5.6 MAINTENANCE AND ADOPTION

5.6.1. The maintenance schedules below are indicative and subject to refinement through the detailed design of the surface water drainage systems for the individual development parcels. They are based on the current best practice guidance provided by the SuDS Manual (CIRIA C753).

- 5.6.2. The general maintenance regime of the proposed strategy is outlined below:

PERMEABLE PAVING

- 5.6.3. Ownership / adoption: homeowner (single property driveways); Private Management Company (two or more property driveways, car parking areas).
- 5.6.4. Maintenance requirement: brushing and vacuuming three times per year; removal of weeds, repair any broken blocks / damaged areas; maintain vegetation; three-monthly inspection of poor operation and/or weed growth; annual inspection of silt accumulation and inspection chambers.

SOAKAWAYS

- 5.6.5. Ownership / adoption: homeowner (single property soakaways); Private Management Company (soakaways serving residential roads and common areas).
- 5.6.6. Maintenance requirement: regular (annual) inspection of soakaways, especially after significant storm events / removal of debris and grass cutting. Occasional maintenance such as sediment removal should be performed as required based on inspections.

6 FOUL WATER DRAINAGE STRATEGY

6.1 EXISTING FOUL INFRASTRUCTURE

- 6.1.1. Thames Water asset records (**Appendix A**) indicate that there are multiple foul sewers which could accept flows from the Proposed Development.

6.2 PROPOSED FOUL DRAINAGE STRATEGY

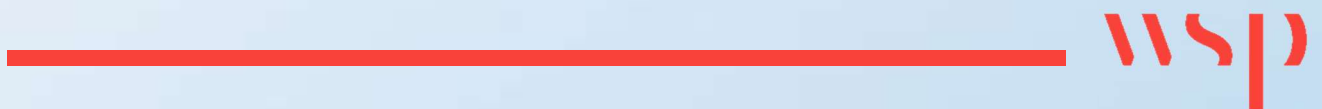
- 6.2.1. A sewer capacity inquiry was not made to Thames Water at this stage of the Project Lifecycle.
- 6.2.2. The proposed foul drainage network is presented in **Appendix F**.
- 6.2.3. The key design elements of the foul drainage strategy for the Proposed Development are summarised below:
- Subject to Thames Water approval the proposed foul drainage network would be connected to the existing 150mm Thames Water foul sewer available adjacent to Nine Mile Ride (manhole reference number 1905 on the Thames Water asset record drawings).
 - The diameter of the proposed foul sewer within the site is to be 150mm laid at a gradient no flatter than 1:150.
 - Total predicted foul flow would be 1.5 l/sec based on 26 units and flow rates taken from the Design and Construction Guidance (2020) Section B3.1b.

7 CONCLUSION

- 7.1.1. WSP was appointed by Elivia Homes Ltd to prepare a Project Site specific Flood Risk Assessment (FRA) and Surface Water Drainage Strategy for the proposed development on land at and to the rear of No. 240 Nine Mile Ride, Finchampstead.
- 7.1.2. The Project Site is located completely in Flood Zone 1. Land in Flood Zone 1 has a less than 0.1% AEP annual probability of river or tidal / sea flooding.
- 7.1.3. The Project Site covers an area of 1.9ha and consists of both brownfield and greenfield components. Current land use for the greenfield component is shown on aerial imagery as woodland. Existing development will not be retained and incorporated into the Proposed Development. Consequently, for the purpose of this FRA, the site will be assessed as greenfield.
- 7.1.4. The Proposed Development comprises 26 residential units and associated infrastructure.
- 7.1.5. The NPPF classifies residential use as 'More vulnerable' which is considered acceptable in Flood Zone 1. As such, the site satisfies the Sequential Test and there is no need to apply the Exception Test.
- 7.1.6. The site is not at risk of flooding from any sources, although a detailed ground investigation should be commissioned to assess the possibility of perched aquifers and depth to the groundwater table.
- 7.1.7. The surface water drainage strategy is based on discharge to ground via infiltration using soakaways. The infiltration rate was assumed using the CIRIA C753 SuDS Manual and should be checked against site specific geology and infiltration values obtained from a BRE365 compatible infiltration test.
- 7.1.8. An outline foul water drainage strategy has also been prepared. Subject to Thames Water approval the proposed foul drainage network would connect to the 150mm Thames Water foul sewer existing along Nine Mile Ride.
- 7.1.9. Safe access / egress to and from the Project Site is available and will be provided via Nine Mile Ride.
- 7.1.10. Overall, the site can be developed sustainably from a flood risk perspective, without increasing flood risk elsewhere.

Appendix A

STAKEHOLDER CORRESPONDENCE



From: [REDACTED]
Sent: 22 October 2020 13:28
To: Lamb, Georgie
Subject: Nine Mile Ride, Finchampstead - Flood Risk Assessment Enquiry ~[UNCLASSIFIED]~

Good Morning Georgie

Thanks for your email . LLFA generally do not provide information as applicant can ask for pre-app and have to pay a fee.

Regarding your query about attenuation we have been designing attenuation systems for the 100 year + 20%CC event and testing for the 100 year + 40%CC event but LLFA prefer to Any attenuation should be designed to attenuate all flows up to and including the 1 in 100 year event +40% climate change. It is a mandatory requirement to provide sufficient information relating to the proposed surface water drainage strategy and consideration must be given to the provision of a SuDS. This is to comply with the requirements set out in Technical Guidance to the NPPF and the Non Statutory Technical Standards for Sustainable Drainage.

There is another useful link regarding water quality.
It is self-explanatory. You just have to put the name of river course or water course you are discharging to and it will give the classification of water course. You will need to establish the discharge point .
After getting classification of the receiving water course, it should be possible to agree the treatment stages required.

<http://environment.data.gov.uk/catchment-planning/WaterBody/GB109054032780>

I think everything is available on Wokingham website but feel free to ask if there is any specific question

Regards
[REDACTED]
Principal Flood Risk & Drainage Adviser
Development Management
Wokingham Borough Council
Shute End, Wokingham, Berkshire, RG40 1WR
Mob: [REDACTED]

Sign up for text and email alerts for emergency and planned highway works at [WBC text alerts](#)



From: Lamb, Georgie [REDACTED]
Sent: 22 October 2020 10:07
To: Flooding <Flooding@wokingham.gov.uk>
Subject: Nine Mile Ride, Finchampstead - Flood Risk Assessment Enquiry

Dear Sir / Madam,

**Nine Mile Ride, Finchampstead
Flood Risk Assessment – Enquiry**

We have been instructed by our client to carry out an assessment of flood risk at the above site.

We are writing to request any flood risk and flood defence data and information with respect to the above site and any other pertinent information or opinion regarding development at the application site.

From a review of data on the Environment Agency’s Website we understand the site lies within Flood Zone 1. The OS grid reference for the site is 480189, 164735 and the nearest post code is RG40 3QD. Please find enclosed a location map for your reference included within the pre-application request form.

Please can you provide us with the following:
Historic records of flooding at the site or in close proximity to the site
Details of any flood defence structure at the site or in the surrounding area
Drainage and water quality requirements (see below)

Please could Wokingham Borough Council provide advice on how they would expect the Climate Change guidance to be applied with regards to surface water attenuation requirements? Typically, we have been designing attenuation systems for the 100 year + 20%CC event and testing for the 100 year + 40%CC event.

Please could Wokingham Borough Council provide us with any specific SuDS guidance which is not already available on the website? Please could Wokingham Borough Council confirm whether they have any specific water quality requirements for surface water run off?

We trust the above to be satisfactory, however, should you have any queries or require any further information from WSP to be able to answer the above queries, please do not hesitate to get in contact.

Kind Regards,

Georgie Lamb BSc (Hons), MSc, GradCIWEM



T+ 44 (0)1256 318645

Mountbatten House, Basing View,
Basingstoke, Hampshire,
RG21 4HJ

wsp.com

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WSP
Mountbatten House Mountbatten House

BASINGSTOKE
RG21 4HJ

Search address supplied Nine Mile Ride
Wokingham
RG40 3QA

Your reference Nine Mile Ride

Our reference ALS/ALS Standard/2020_4303805

Search date 17 November 2020

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0845 070 9148

Search address supplied: Nine Mile Ride, Wokingham, RG40 3QA

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

South East Water
Rocfort Road
Snodland
Kent
ME6 5AH



Tel: 0845 301 0845

www.southeastwater.co.uk.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

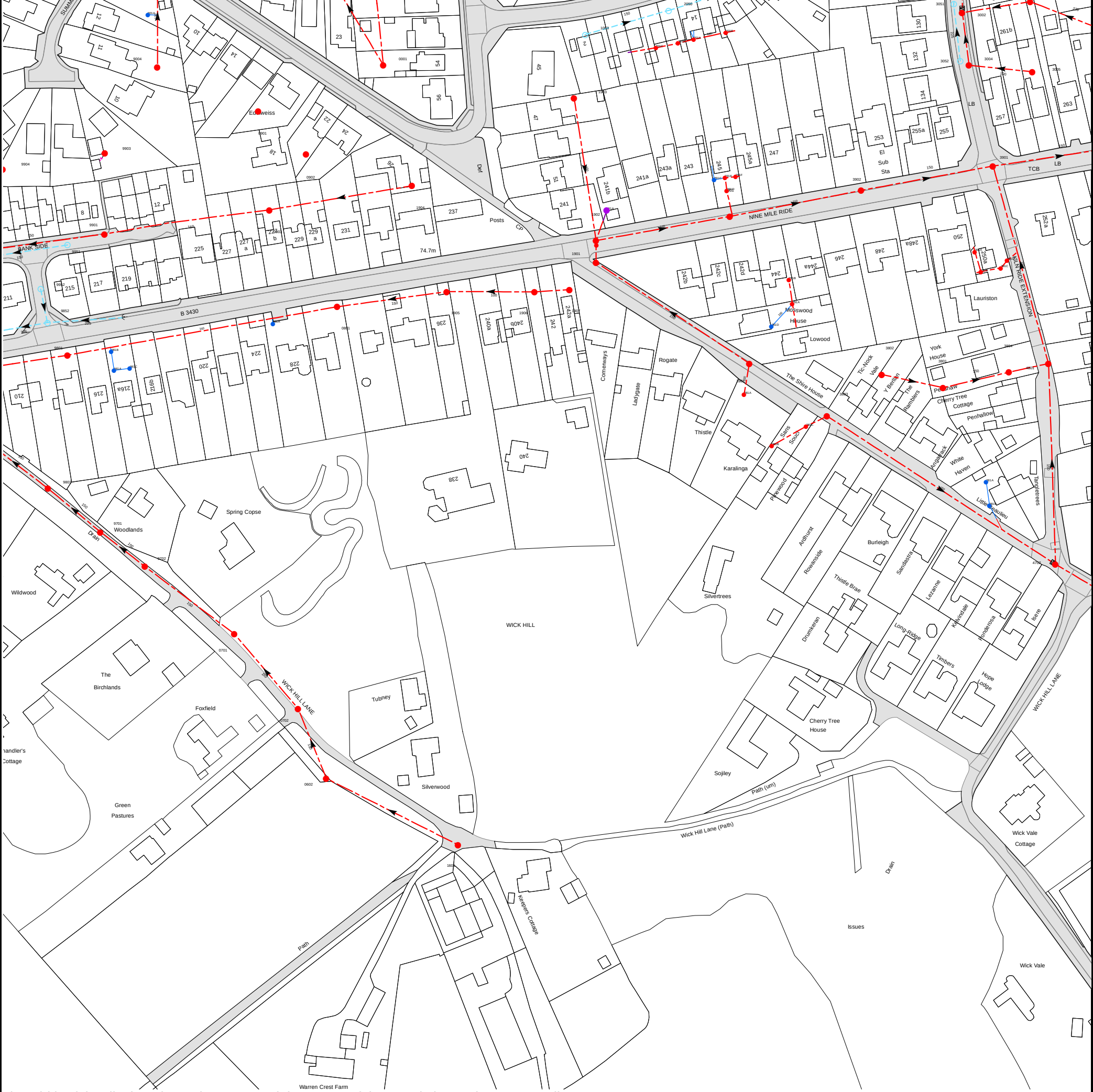
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2020 4303805



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 480173,164791
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3052	67.7	66.45
3002	67.3	65.04
3004	67.72	66.52
3901	68.83	67.16
3003	67.31	65.31
3005	n/a	n/a
3902	70.3	68.28
291C	n/a	n/a
291E	n/a	n/a
291F	n/a	n/a
1903	n/a	n/a
201C	n/a	n/a
201B	n/a	n/a
201A	n/a	n/a
1053	70.25	68.91
201E	n/a	n/a
2050	69	67.82
3051	67.16	66.22
4702	71.13	69.18
381B	n/a	n/a
381A	n/a	n/a
281B	n/a	n/a
281C	n/a	n/a
3803	75.39	73.84
281A	n/a	n/a
3801	71.65	70.84
3802	72.5	n/a
3804	70.35	69.14
4801	69.8	68.35
2801	76.11	n/a
281D	n/a	n/a
291A	n/a	n/a
1906	75.08	74.21
1905	74.76	73.84
1907	75.52	n/a
291B	n/a	n/a
391B	n/a	n/a
391C	n/a	n/a
1901	74.08	72.13
391D	n/a	n/a
391A	n/a	n/a
1902	73.63	70.99
2901	71.99	n/a
191A	n/a	n/a
291D	n/a	n/a
9904	n/a	n/a
9952	70.15	69.23
9951	70.25	68.46
9901	71.08	69
9903	n/a	n/a
901A	n/a	n/a
9004	n/a	n/a
0901	n/a	n/a
0903	n/a	n/a
0902	n/a	n/a
0001	73.27	n/a
1904	n/a	n/a
9702	74.37	72.87
9701	73.24	71.59
9803	71.9	70.23
981A	n/a	n/a
981C	n/a	n/a
9801	n/a	n/a
981B	n/a	n/a
081A	n/a	n/a
9852	69.73	68.64
0801	n/a	n/a
0701	78.76	76.71
0702	81.44	79.54
0602	n/a	n/a
1601	n/a	n/a
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Trunk Surface Water
	Trunk Foul
	Storm Relief
	Trunk Combined
	Vent Pipe
	Bio-solids (Sludge)
	Proposed Thames Surface Water Sewer
	Proposed Thames Water Foul Sewer
	Gallery
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Sludge Rising Main
	Proposed Thames Water Rising Main
	Vacuum

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer
	Surface Water Sewer
	Combined Sewer
	Gully
	Culverted Watercourse
	Proposed
	Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

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All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL's terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking	Cheque
Call 0845 070 9148 quoting your invoice number starting CBA or ADS / OSS	Account number 90478703 Sort code 60-00-01 A remittance advice must be sent to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW. or email ps.billing@thameswater.co.uk	By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number	Made payable to ' Thames Water Utilities Ltd ' Write your Thames Water account number on the back. Send to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Sewer Flooding

History Enquiry



Property
Searches

WSP

Search address supplied 240
Nine Mile Ride
Wokingham
RG40 3QA

Your reference Nine Mile Ride

Our reference SFH/SFH Standard/2020_4303806

Received date 17 November 2020

Search date 20 November 2020



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0845 070 9148

Sewer Flooding

History Enquiry



Property
Searches

Search address supplied: 240,Nine Mile Ride,Wokingham,RG40 3QA

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments



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searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0845 070 9148

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0845 070 9148

From: Enquiries_THM <enquiries_THM@environment-agency.gov.uk>
Sent: 27 November 2020 12:45
To: [REDACTED]
Subject: THM194964 - Nine Mile Ride, Finchampstead - Flood Risk Assessment Enquiry

Dear [REDACTED]

Further to my email dated 25 November, I have received responses from Hydrometry and Telemetry plus our Sustainable Places Team.

There are no Groundwater monitoring sites within the specified 500m range. The nearest sites are approx. 6.5Km away.

There are no designated critical drainage areas.

Yours sincerely

[REDACTED]
Customers & Engagement Officer
Direct Dial: [REDACTED]

Environment Planning & Engagement Team
Environment Agency
Thames Area

Did you know that the Environment Agency publishes most of its data via www.data.gov.uk? Using this site you can search for our data alongside other environmental data providers from the Defra Network and local authorities.



For the latest guidance:

- INTRANET.EA.GOV
- NHS.UK/coronavirus
- GOV.UK/coronavirus



Follow us on:-



From: Enquiries_THM
Sent: 25 November 2020 15:20
To: [REDACTED]@wsp.com' <[REDACTED]@wsp.com>
Subject: THM194964 - Nine Mile Ride, Finchampstead - Flood Risk Assessment Enquiry

Dear [REDACTED]

Thank you for your enquiry. I'm really sorry for the delay in processing your request. We are currently experiencing an extremely high volume of enquiries and our working patterns continue to be disrupted due to the coronavirus (COVID-19) pandemic.

Unfortunately I am unable to supply a Product 4 for this site as we do not have any modelled watercourses in the area. Please find attached an extract from the flood map and surface water flood map. I have asked the relevant teams for data on groundwater levels and critical drainage areas, once I have received their responses I will forward them onto you.

I hope that we have correctly interpreted your request. Please refer to our Open Government Licence for the permitted use of the supplied data:
<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Please be aware that many of our datasets are now available online. Simply visit environment.data.gov.uk

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely

[REDACTED]
Customers & Engagement Officer
Direct Dial: [REDACTED]

Environment Planning & Engagement Team
Environment Agency
Thames Area

Did you know that the Environment Agency publishes most of its data via www.data.gov.uk? Using this site you can search for our data alongside other environmental data providers from the Defra Network and local authorities.

Follow us on:-



From: Enquiries, Unit

Sent: 23 October 2020 10:26

To: '[REDACTED]@wsp.com' <[REDACTED]@wsp.com>

Subject: FW: ref: 201023/KT02 - Nine Mile Ride, Finchampstead - Flood Risk Assessment Enquiry

Good Morning [REDACTED],

I have passed your e-mail to the local customer team who will deal with your request.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days.

However due to the ongoing COVID-19 pandemic affecting staff and resources we may take longer than the 20 working days to reply. We aim to provide an answer as soon as we can.

You can find more information about our service commitment by clicking on the link below:

<https://www.gov.uk/government/publications/environment-agency-customer-service-commitment>

You can contact our customer team directly on the contact details below, or call the National Customer Contact Centre on 03708 506506 who will transfer you to the area team.

Please quote your enquiry reference 201023/KT02 in any correspondence with us regarding this matter.

Enquiries_THM@environment-agency.gov.uk

Customers and Engagement
Environment Agency
Thames Area
Redkite House
Howbery Park
WALLINGFORD
OX10 8BD

Kind regards,

[REDACTED]

Customer Service Adviser, National Customer Contact Centre
Operations : Regulation, Monitoring & Customer
Environment Agency

Tel: [REDACTED]

Web Site: www.gov.uk/environment-agency

Click an icon to keep in touch with us:-



From: [REDACTED] [[mailto:\[REDACTED\]@wsp.com](mailto:[REDACTED]@wsp.com)]

Sent: 22 October 2020 10:01

To: Enquiries, Unit <enquiries@environment-agency.gov.uk>

Subject: ref: 201023/KT02 - Nine Mile Ride, Finchampstead - Flood Risk Assessment Enquiry

Dear Sir / Madam,

**Nine Mile Ride, Finchampstead
Flood Risk Assessment – Enquiry**

We have been instructed by our client to carry out an assessment of flood risk at the above site.

We are writing to request the Environment Agency provide any flood risk and flood defence data and information with respect to the above site and any other pertinent information or opinion regarding development at the application site.

The site is shown to be located within Flood Zone 1. The OS grid reference for the site is 480189, 164735 and the nearest post code is RG40 3QD. Please find enclosed a location map for your reference.

Please could the Environment Agency provide the following information, where available:

1. Please could the Environment Agency provide Product 4 data. We understand that there is no detailed hydraulic model for the site – If this is not correct, please can you provide this as well?
2. Historical records of flooding at or within the vicinity of the site from all sources of flooding. If the Environment Agency does not hold any records, please can you confirm that the site has no record of flooding in the past.
3. Details of any flood defences in the area that might influence flooding at the site / surrounding area.
4. Please could the Environment Agency confirm whether they have any specific water quality requirements for surface water runoff within Wokingham.
5. Groundwater levels on or within 500m of the site (including details of the strata in which the groundwater level observations are made).
6. Does the Environment Agency have any critical drainage areas that cover the development site and have these been notified to Wokingham?
7. Any additional flood data the Environment Agency considers useful for the above site.

We trust the above is clear, however, should you have any queries or require any further information from WSP to be able to answer the above queries, please do not hesitate to get in contact.

Kind Regards,


Graduate Engineer



T+ 44 

Mountbatten House, Basing View,
Basingstoke, Hampshire,
RG21 4HJ

wsp.com

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