Flood Risk Assessment

Old Town, Newbury

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We design for delivery

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Report Amendment Register

Issue Ref	Amended Section(s)	Issue/Amendment Details	Author(s)	Reviewer	Date
P01		First issue	N.Brown	J.Gold	28/03/24
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Appendices

1. Introduction

1.1 General

Robert Bird Group (RBG) have been appointed by Lochailort Newbury Ltd to undertake a Flood Risk Assessment (FRA), to support the planning application for the Old Town Development in Newbury, West Berkshire.

This FRA has been carried out in accordance with National Planning Policy Framework (NPPF) and the NPPF Technical Guide.

This FRA has been prepared based on the following information:

- Architect's proposed General Arrangements drawings by Woods Hardwick (Ref:19401 1003, May 2024)
- Topographical Survey by Geometric Surveyors (ref: 396KC01, October 2019)
- Thames Water Asset Location Search (ref: 1108775, May 2020)

Robert Bird Group cannot accept liability for the accuracy or otherwise of any information derived from third party sources.

1.2 Objectives and Scope

The objectives of this FRA are to establish:

- Whether the proposed development is likely to be affected by current or future flooding from any sources;
- Whether the proposed development will increase flood risk elsewhere;
- Whether the measures proposed to deal with these effects and risks are appropriate;
- Whether the proposed development is suitable with consideration of the national and local planning policies regarding flooding.

To achieve these objectives, this FRA provides the following information:

- A review of parts of the planning framework and requirements to apply the sequential and exception tests;
- A summary of the existing site context;
- An assessment of the risk to the site from flooding from all possible sources;
- A review of the potential effects of climate change on the site;
- Recommendations on the inclusion of flooding mitigation measures if required;
- Recommendations for the design of the surface water management strategy for the site and feasibility assessment of SuDS measures.

2. Planning Policy Context and Consultation

This section provides a summary of the planning context with respect to flood risk for the development, including relevant national, regional and local legislation.

2.1 Relevant Planning Policy

2.1.1 National Planning Policy

The NPPF was introduced by the Department for Communities and Local Government in March 2012 and updated in September 2023. Planning Practice Guidance (PPG) on the subject of Flood Risk and Coastal Change is also published to advise how to take account of and address the risks associated with flooding in the planning process.

National Policy aims to protect people and property from the risks of flooding. In order to achieve this a sequential approach to development is taken to reduce flood risk as much as possible.

2.1.2 Local Planning Policy

WBC is the Lead Local Flood Authority for the site and have produced a series of documents that inform development with regards to flood risk as well as specifying SuDS requirements.

The local planning policy is outlined in the WBC Core Strategy which was adopted in July 2012. Policy CS 16: Flooding, regards flood risk. This policy details the requirements that all development in West Berkshire should conform to, to improve the sustainability of buildings against flood risk and direct development away from areas at high risk of flooding.

The WBC Strategic Flood Risk Assessment (SFRA), issued in November 2020, assesses flood risk within the council area. It aids planning policy by assessing development with regards to the flood risk and provides guidance for managing the risk.

3. Site Description

3.1 Location

The site is located towards the centre of Newbury, Berkshire, site postcode RG14 5EN. The site is approximately 2.2 ha in size and comprises the Kennet Shopping Centre. The Kennet Shopping Centre is a mixed two-storey and three-storey structure, which is internally partitioned into separate retail/commercial units.

The Centre itself was originally built in 1974. A multi-storey car park is presented to the south-west corner and a cinema is present to the south-east. The site is within a seven minute walk from Newbury train station, with bus stops surrounding the existing site. The A339 also runs close to the site on the right side. A part of the site is next to listing buildings which can be interoperated from the site boundary. These buildings mainly lie north of the site.

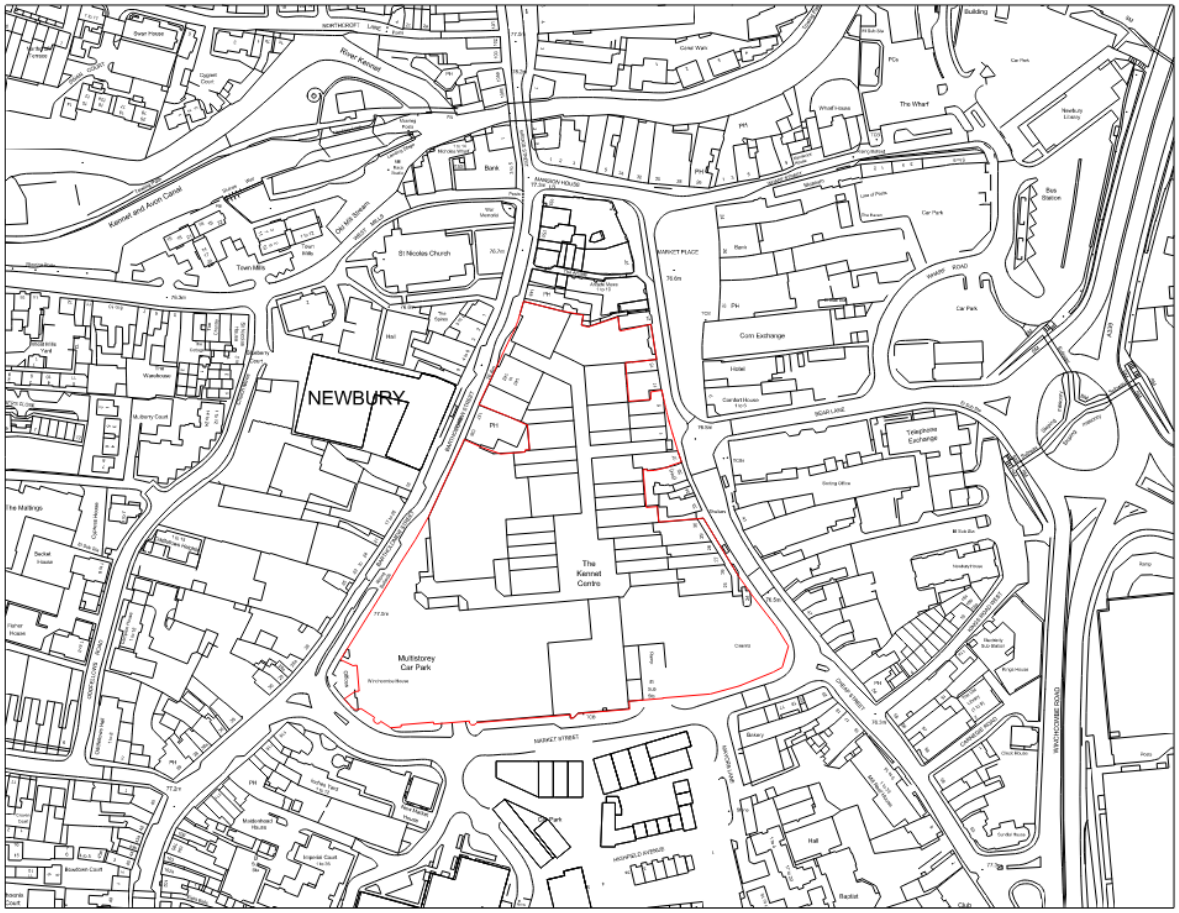


Figure 3.1: Site location plan

3.2 Topography

The local topography is relatively flat, with the site located towards the floor of a valley carrying the River Kennet, which merges into the Kennet and Avon Canal, which flows west-east some being 85m to the north of site.

The existing site is relatively flat with levels varying between 76.5 and 77.2m AOD. In general, the northern part of the site is lower with rising levels towards the south.

Refer to Appendix A for the Topographical Survey of the site.

3.3 Geology

The ground investigation report identified that made ground and alluvium deposits are likely to underly the site to a depth of 3-4m. Beneath these strata superficial deposits of Beenham Grange Gravel Members can be found to a depth 7-8m which are in turn underlain by the Seaford Chalk Formation, which extended to the depth of the intrusive boreholes (~25m deep).

Groundwater was encountered during the site investigation to depths between 2.53 and 3.5m.

3.4 Hydrology

The River Kennet lies approximately 100m to the north of the site which is classed as a main river by the Environment Agency. However, there are some sections of the site lying approximately 85m away from the river.

3.5 Hydrogeology

Groundwater was encountered during the intrusive Site Investigation. This was encountered at within the made ground alluvium deposits.

Aquifer designation mapping proved by DEFRA indicates that the site lies in a Principal aquifer zone for Bedrock (Figure 3.2) and Secondary A aquifer zone for Superficial Deposits (Figure 3.3).

Figure 3.2: Aquifer Designation Map (Bedrock), from magic.defra.gov.uk (March 2024)

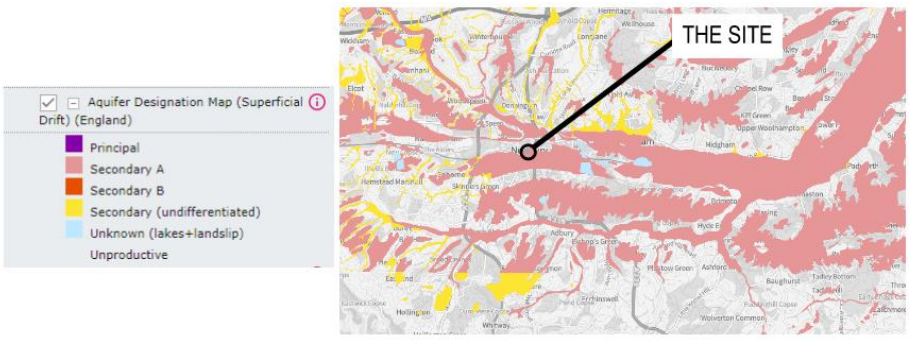


Figure 3.3: Aquifer Designation Map (Superficial Drift), from magic.defra.gov.uk (March 2024)

Groundwater vulnerability mapping provided by DEFRA indicates that the site lies in a zone that is designated as a 'Medium-High Risk'. Therefore, any contamination entering the ground does has a risk of contaminating groundwater resources.

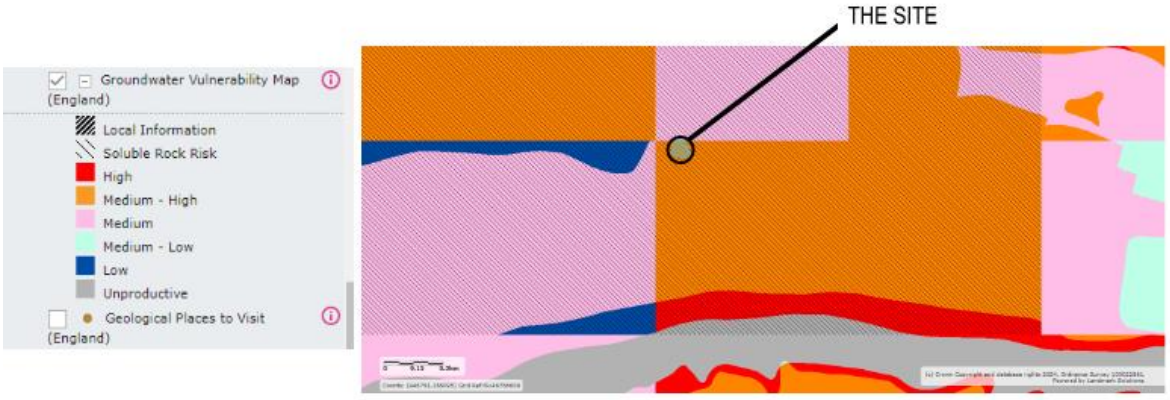


Figure 3.4: Groundwater Vulnerability Map, from magic.defra.gov.uk (March 2024)

The site lies in a Groundwater Source Protection Zone (Figure 3.5) designated as Zone III (Total catchment). SPZs are defined around potable groundwater abstraction sites and the designation implies that groundwater recharge is presumed to be discharged at the source.

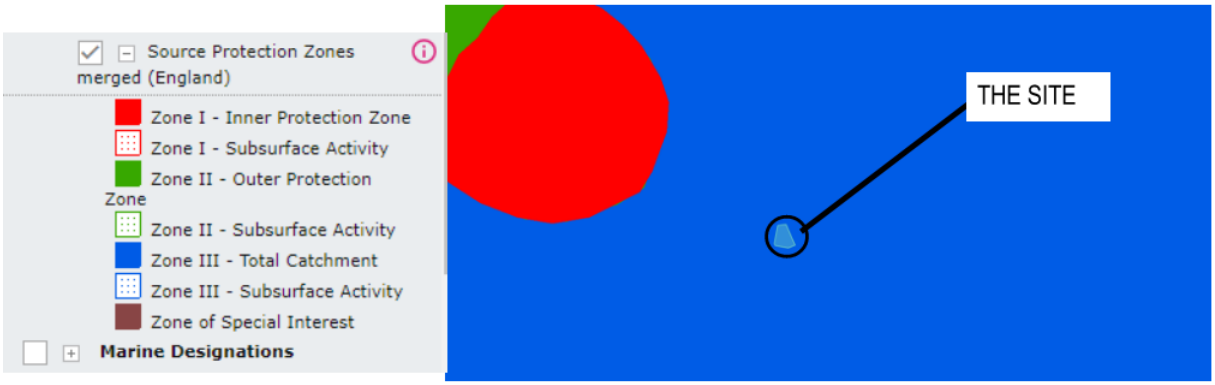


Figure 3.5: Source Protection Zones, from magic.defra.gov.uk (March 2024)

3.6 Climate

WBC as the LLFA have advised that when assessing for the effects of climate change of rainfall intensity, national advice should be followed. Therefore, rainfall modelling for the purpose of designing the onsite drainage should be carried out with a 40% climate change factor to understand the range of impact for the 1 in 100 year event. The EA have provided flood level information with a range of climate change factors from 35-70%. These climate change factors are considered for the setting out of on-site levels to prevent river flooding.

3.7 Existing Drainage

The existing site discharges foul and surface water to the public Thames Water sewers in Cheap Street and Bartholomew Street. It is noted that the Thames Water sewers are separate systems.

Record information suggests that surface water from the existing buildings is discharged into the Thames Water 750mm diameter surface water sewer in Cheap Street. There are a number of foul water connections from the siter discharge to the Thames Water 225mm diameter foul water sewer in Bartholomew Stret and to the Thames Water 225mm diameter foul sewers in Market Place and Cheap Street.

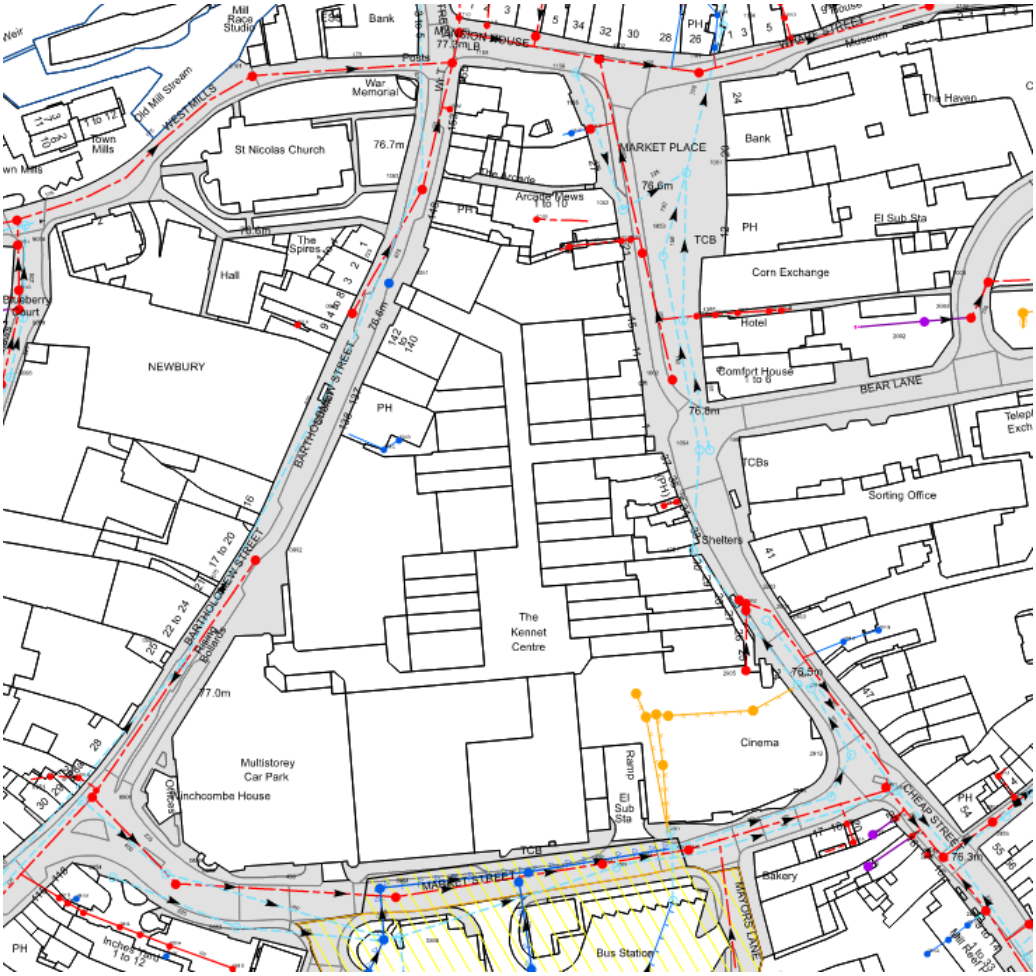


Figure 3.6: Thames Water Asset Records Plan

Refer to Appendix B for the Thames Water Asset Location Search.

4. Flood Risk

4.1 Flood Risk

The Environment Agency (EA) classifies that around half of the site lies in Flood Zone 1 (lowest risk of flooding) with the rest of the site being within Flood Zone 2 (low probability of flooding).

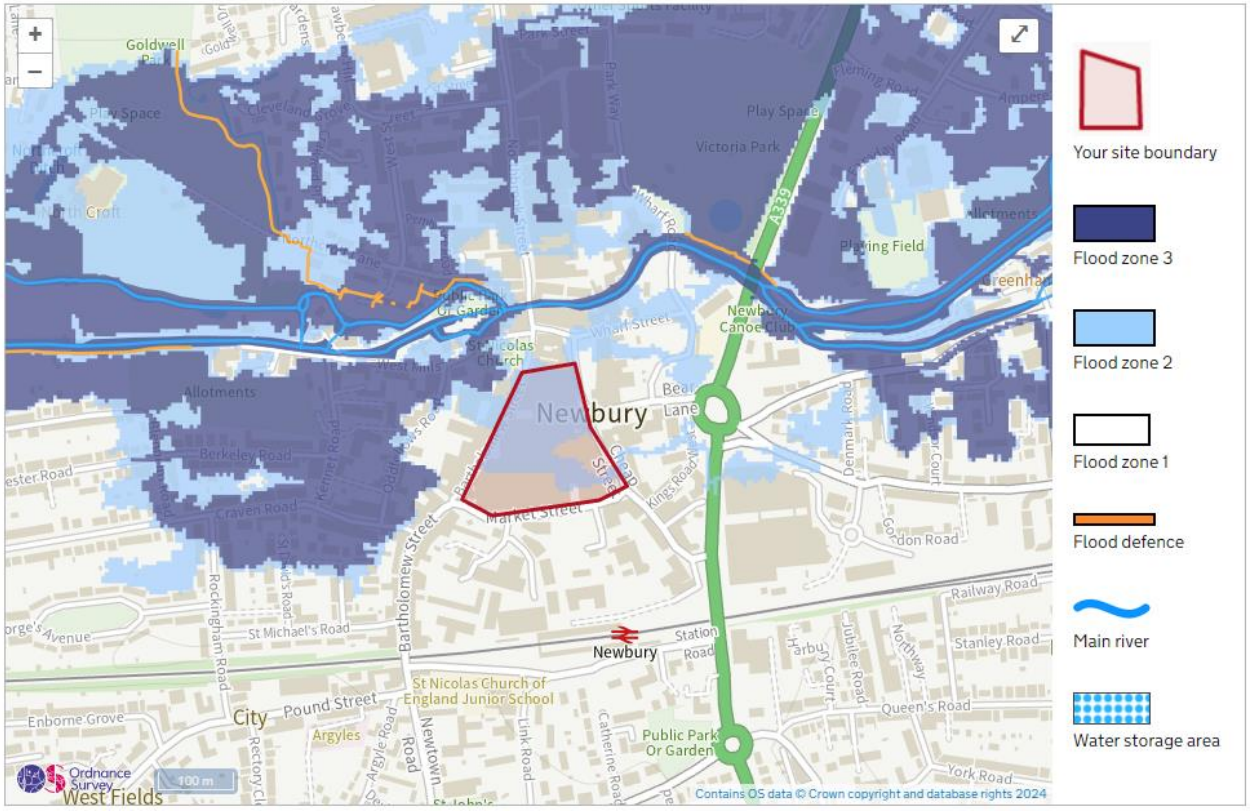


Figure 4.1: Environment Agency Flood Zone Map (extracted from flood-map-for-planning.service.gov.uk, March 2024)

4.2 Flood Risk Sources

4.2.1 Tidal/Fluvial

Around half of the site lies within Flood Zone 2 which is designated by the EA to be at risk of flooding from fluvial sources for events with between a 1 in 100 year and a 1 in 1000 year annual probability of occurring.

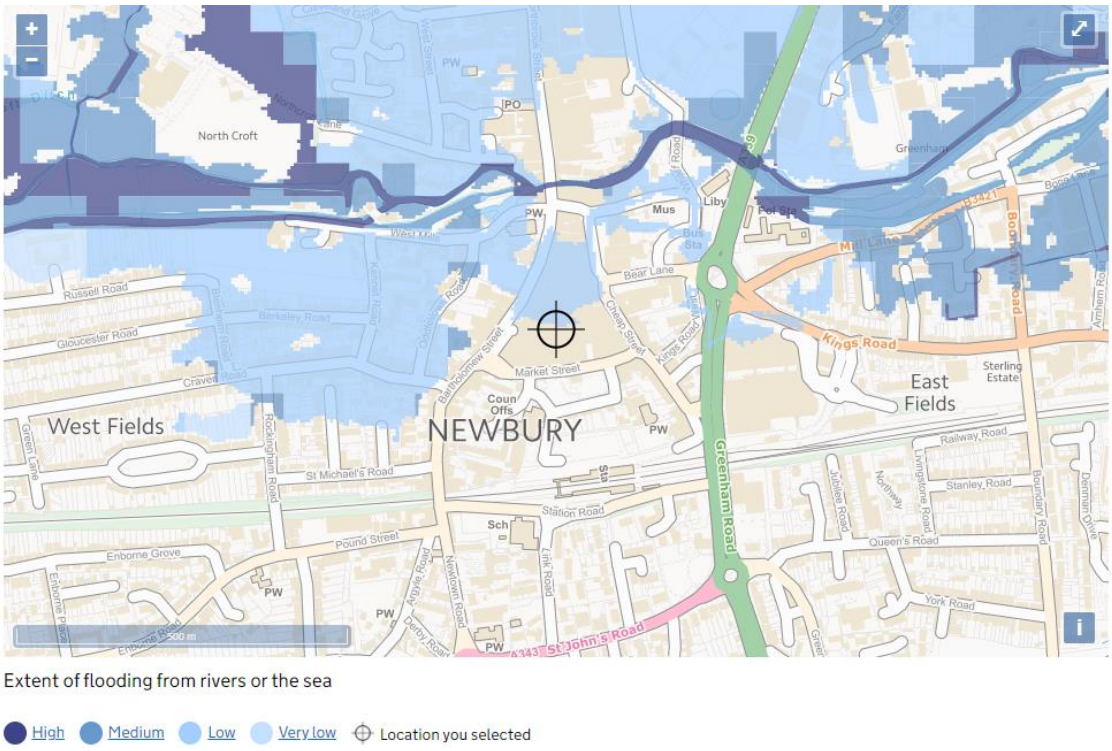


Figure 4.2: Environment Agency Extent of Flooding Map from Rivers or the Sea (extracted from flood-map-for-planning.service.gov.uk, December 2020)

Flood data has been obtained from the EA for the site. The site lies within the extents of river flooding expected in a 1 in 100 year storm event with 70% climate change factor. In this evet a flood level of 76.74m AOD is expected on the site.

In consultation with the EA a flood level of 76.62m AOD is expected on the site in the 1 in 100 year storm event with 35% climate change factor.

Refer to Appendix C for the EA Product 4 information on flooding and Appendix D for meeting minutes of the consultation with EA.

4.2.2 Surface Water

The majority of the site lies in an area designated by the EA to be at very low risk of surface water flooding during extreme rainfall events. The streets bordering the site are at low to medium risk from surface water flooding and a localised area of the site is considered to be at high risk of surface water flooding.

The majority of the site therefore is not anticipated to be at risk of flooding from surface water from storm events with a less than 1 in 100 year probability of occurring. The adjacent streets are at risk of flooding from storm events within between a 1 in 30 year and a 1 in 100 year annual probability of occurring. A localised area of the site could be at risk from flooding from storm events with a less than 1 in 30 year probability of occurring.

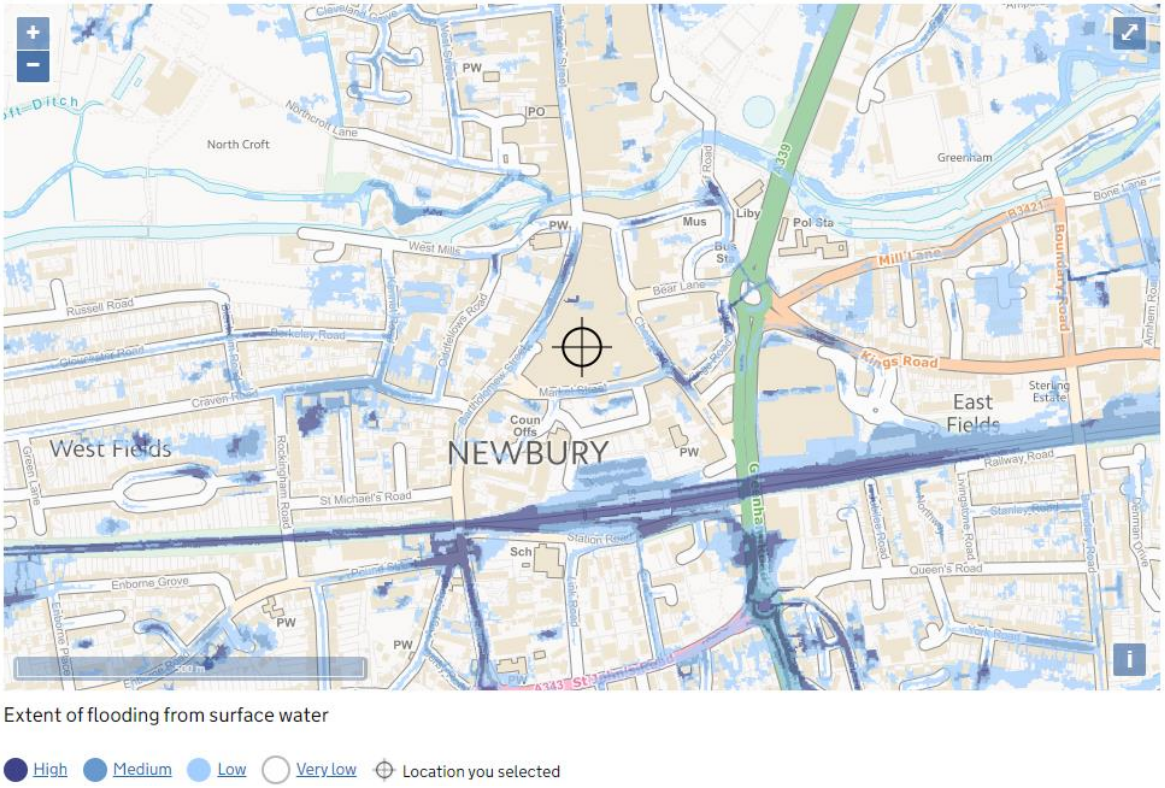


Figure 4.3: Environment Agency Flood Extents of Flooding Map from Surface Water (extracted from flood-map-for-planning.service.gov.uk, December 2020)

The SFRA for WBC notes areas that are considered to be Critical Drainage Areas (CDA). A CDA is defined as an area where multiple sources of flood risk often cause flooding during serve weather that can affect people, property, or infrastructure. The development site does not lie within a CDA.

Refer to Appendix E for the SFRA maps which define critical drainage areas.

4.2.3 Groundwater

The SFRA for WBC notes areas where groundwater emergence is possible. The site lies outside this zone and therefore groundwater flooding is not considered to be likely. Three groundwater flooding incidents within 500m of the site have taken place since 2001, however these occurred within a zone designated at risk of groundwater emergence.

Refer to Appendix E for the SFRA maps showing the location of the groundwater emergence zone and previous groundwater flooding incidents.

4.2.4 Sewers

As shown in the Thames Water Asset Location Search in Appendix B a number of surface water sewers are present in the vicinity of the site. However, surcharging of these sewers is not anticipated to lead to flooding on the site due to the surrounding topography.

It is noted that 6-10 previous incidents of sewer flooding have occurred in the region of Newbury where the Kennet Centre is located, however due to the high-level recording of these incidents it is not possible to determine how close these incidents occurred to the site. No known flooding events attributed to sewers have been recorded in the vicinity of the site.

Figure 4-8: Location of postcodes included within the sewer flooding register.

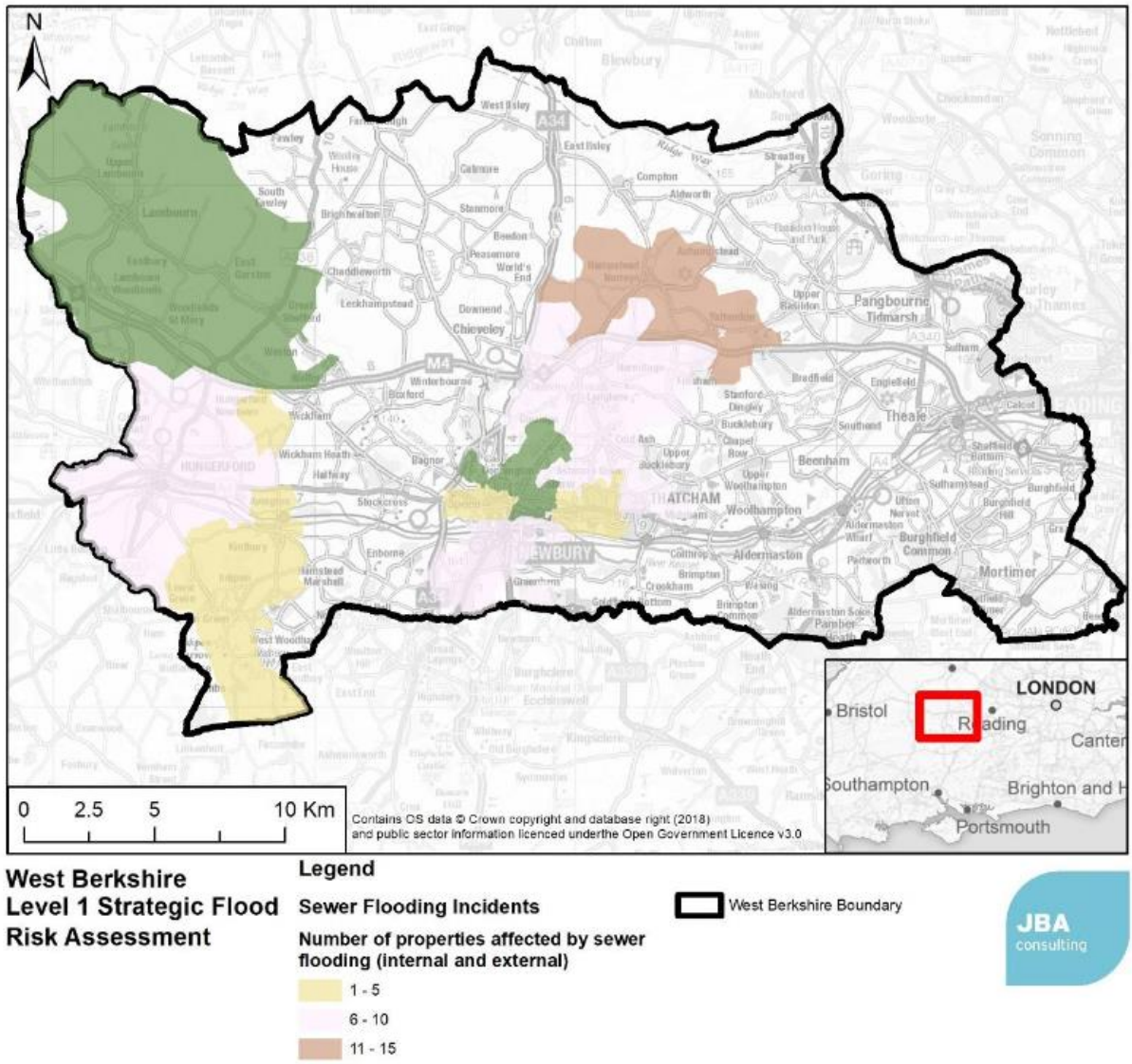


Figure 4.4: Location of sewer flooding incidents in West Berkshire, Figure 4-8 extracted from the WBC SFRA

4.2.5 Artificial Sources

The site does not lie within the maximum extent of flooding if a reservoir breach was to occur. A number of water mains are present in the vicinity of the site as shown in the Thames Water Asset Location Search in Appendix C. However, a burst pipe is not anticipated to cause flooding on the site due to the surrounding topography.

4.3 Flood Risk Summary

Based on the assessment of the flooding sources above, the flood risk summary for the site is presented below:

	High	Medium	Low	
Tidal/Fluvial		x		Half of the application site is in Flood Zone 2
Surface Water		x		Generally low risk of surface flooding on site due to topography with localised high-risk area
Groundwater			x	Susceptibility to groundwater flooding is considered to be low
Sewers			x	Sewer flood risk included in surface water flood risk
Artificial sources			x	Site outside reservoir breach extents

Table 4.1: Flood Risk Summary

5. Assessment of New Development

5.1 Proposed Development

The existing buildings on the site are to be demolished, except for the car park and the cinema. The proposed re-development will be a residential, with associated public realm improvements. The latest Architects General Arrangement Plans for the Ground Floor and Semi-Basement Level can be found in Appendix F.

5.2 Flood Risk Vulnerability

The NPPF takes a sequential, risk-based approach to the location of development with regards to flood risk. This approach is published in the NPPF Planning Practice Guidance (PPG) and the flowing steps have been followed in this approach:

- Flood Zones are defined as per 'Table 1: Flood Zones' of the NPPF PPG. As determined above in section 4, the site lies within Flood Zone 1 and 2.
- The vulnerability of the development is defined as per 'Table 2: Flood Risk Vulnerability Classification' of the NPPF PPG. Residential development is the most vulnerable development classification on the site and therefore the development is classed as a 'More Vulnerable' development. The development does have some semi-basements, however these basements will have internal access to higher floors and there will be no sleeping accommodation provided at basement level..
- The suitability of the development with respect to the flood zone is defined as per 'Table 3: Flood Risk Vulnerability and Flood Zone compatibility. From this table, as shown below, it can be seen that 'More Vulnerable' development is considered appropriate in Flood Zone 2.

Flood Zones	**Flood Risk Vulnerability Classification**				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

Figure 5.1: from gov.uk/guidance/flood-risk-and-coastal-change, Table 2: Flood risk vulnerability

It is therefore deemed that the development is permitted as it passes the sequential test and there is no requirement to apply the exception test for the development.

5.3 Flood Mitigation Measures

As half of the site lies within Flood Zone 2 and does not lie within a Critical Drainage Area, it is considered to have a low risk of flooding. The following recommendations in the site layout and design from the WBC SFRA to mitigate flood risk are applicable on the site:

- Safe access and egress are provided from the development during the 1 in 100 year storm event from any source of flooding.
- Finished floor levels should be raised above 1 in 100 year fluvial storm events where possible whilst consideration is made to keep the development accessible to all.
- All basements, basement extensions and conversions must have internal access to a higher floor situated 300 mm above the 1% annual probability flood level (1 in 100 year) including climate change.

In addition, the following best practice measures are recommended in the design of the site:

- Ground levels are to be set to fall away from buildings threshold.
- On site ponding of water in extreme storm events is to be kept away from buildings.
- Proposed drainage network to prevent above ground flooding for the 1 in 30 year storm event and prevent flooding from affecting buildings for the 1 in 100 year storm event factored for climate change.

A consultation meeting has been held with the EA with regards to flood risk. The EA stated that in general property FFLs should be maintained above the 1 in 100 year + 35% climate change flood level (76.62m AOD). This has been maintained across the site with sole exception of the units along Bartholomew Street as they will be required to tie into existing levels for accessibility purposes.

6. Sustainable Drainage Assessment

This SuDS selection assessment provides a high-level assessment of the different SuDS techniques and solutions which may or may not be appropriate for accommodating the surface runoff from the proposed development. The assessment addresses the quality, quantity and amenity impact on the future development proposals as well as the opportunity to combine various SuDS techniques to produce a recognised management/treatment train solution.

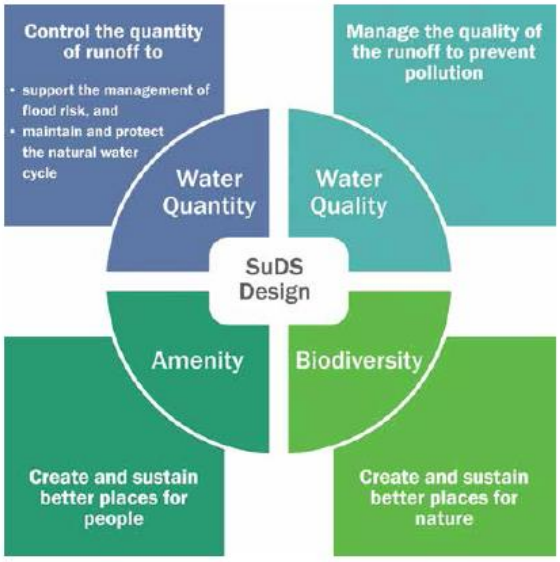


Figure 6.1: The Four Pillars of SuDS Design (extracted from CIRIA 753 The SuDS

This selection assessment is undertaken at a preliminary level and further details of the SuDS strategy are to be developed at the next design stage.

6.1 SuDS Design Process

The three key aims of any SuDS network are as follows:

- Provision of attenuation for quantity of onsite surface water.
- Pollution and particulate removal for quality of the onsite surface water.
- Provision of spaces to enhance biodiversity, ecology, and amenity spaces.

Surface levels SuDS can also provide resilience against extreme storm events and potential below ground blockages by intercepting surface water flows through landscape features, preventing reliance on gullies and drainage channels. This provides exceedance flow routes through the site when the below ground network is at capacity.

6.2 Site Constraints

The selection of SuDS measures is influenced by the site constraints. These constraints have been assessed for the Kennet Old Town development so that the most appropriate techniques can be selected. The key assessment parameters for the site constraints are shown below:

Parameter	Comments
Land use	New development to be mainly residential, with half basements and 5 retail units.
Fluvial and Surface Water Flood Risk	Site partially within Flood Zone 2, with medium risk of fluvial/tidal flooding on the northern half of the site. Site in an area at very low risk of surface water flooding
Soil Permeability Infiltration	The site lies in an area determined to have permeable ground conditions
Groundwater Contamination	The site is located in an area that is considered to be vulnerable to contaminating ground water
Depth to water table	During the site investigation groundwater strikes occurred at varying depths between 2.5m bgl and 3.2m bgl. The groundwater table is at shallow depth in places which restricts the use of infiltration.
Available space for SuDS	The site is relatively small, large scale SuDS schemes will not be possible to implement.
Run-off catchment characteristics	Site is to comprise roofs, paved areas, and soft landscaping. Majority of the site is to be hard standing or roof.

Table 6.1: Site Constraints affecting implementation of SuDS measures

6.3 SuDS Hierarchy

In line with WBC SuDS supplementary planning document, the surface water run-off is to be managed as close to source as possible in line with the following drainage hierarchy.

	SuDS technique	Proposed	Comment
Most sustainable	Store rainwater for later use	✓	Rainwater harvesting tanks will be provided, feeding a network of external water taps.Blue roofs are also proposed on the flats in the southern part of the site (they are not feasible elsewhere due to use of pitched roofs).
	Use infiltration techniques, such as porous surfaces in non-clay areas	✗	Whilst ground is considered to be permeable, the shallow groundwater table will preclude the use of infiltration techniques.

	Attenuate rainwater in ponds or open water features for gradual release	✗	Site is too constrained to allow for open water features
	Attenuate rainwater by storing in tanks or sealed water features for gradual release	✓	Rainwater will be attenuated by means of buried tanks and blue roofs.
	Discharge rainwater direct to watercourse	✗	There are no surface water bodies close to the application site
	Discharge to a surface water sewer/drain	✓	Surface water sewers are present in Cheap Street and Bartholomew Street. It is proposed to utilise two existing site connections in Cheap Street.
Least sustainable	Discharge rainwater to the combined sewer	✗	Not required due to the presence of surface water sewers.

Table 6.2: Sustainable Drainage Hierarchy

6.4 SuDS Selection

The selection of SuDS measures has been based on the site constraints and drainage hierarchy detailed above. Table 6.4 identifies the potential SuDS options for the development.

6.4.1 Quality

It is anticipated that the drainage network for the site will discharge into a surface water sewer. Due to the low sensitivity of the receiving sewer and land uses anticipated on the site, the simple index approach has been used to determine if there is a risk to water quality.

Table 6.3 identifies the pollution hazard associated with the proposed land uses on the site and the types of SuDS options that could be used to mitigate against the risk to water quality from these pollution hazards.

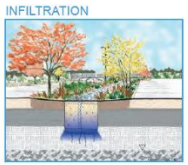
Land use	**Pollution hazard level**	**Pollution hazard indices *(based on Table 26.2, CIRIA SuDS Manual 2015)***	**Types of SuDS components to mitigate pollution as a minimum *(based on Tables 26.3, CIRIA SuDS Manual 2015)***
Residential roofs	Very low	Total suspended solids: 0.2 Metals: 0.2 Hydrocarbons: 0.05	Filter drain, bioretention
Low traffic roads, residential car parking	Low	Total suspended solids: 0.5 Metals: 0.4 Hydrocarbons: 0.4	Bio-retention, oil separators

Table 6.3: Simple Index Approach to Water Quality Management

6.4.2 Quantity

SuDS measures are to be used to provide attenuation storage for the development so that the water can be discharged into the public sewer at a reduced runoff rates from the existing case. Attenuation will be provided in below ground sealed water features as there is not considered to be sufficient space above ground to accommodate open water features.

SUDS group	Technique	Image	Description	Advantages	Disadvantages	Suitable for use at site?
Source Control	Green/Brown roof		Multi-layered system that covers the roof of a building with vegetation cover/landscaping over a drainage layer. Designed to intercept and retain precipitation, reducing the volume of runoff and attenuating peak flows.	Mimics greenfield state of building footprint for high density developments, good removal of pollutants, ecological benefits, insulates buildings, sound absorption.	Additional weight, not appropriate for steep roofs, maintenance of roof vegetation.	✗ Not suitable on pitched roofs.
	Rainwater harvesting		Uses rainwater from roofs to supply toilets, washing machines and irrigation systems. Harvested rainwater is stored onsite and is substituted for mains supply, reducing both site discharge and potable water consumption.	Can provide source control of storm water total volume, reduces demand on mains water.	Use is dependent on demand requirements, contributing surface area, and seasonal rainfall characteristics.	✓ Rainwater harvesting tanks to be provided to supply water for external use (eg. watering of plants, car washing).
	Porous Paving/ Porous Asphalt		Surfacing that allows rainwater to infiltrate through the surface and into the underlying layers. The water is temporarily stored before infiltrating the ground or discharging to the sewerage system.	Provides source attenuation and low-level treatment of highway runoff. Reduction in runoff volume via potential infiltration.	Often requires increased construction depth and may not be applicable to heavy traffic loadings.	✗ Proposed hard landscape finishes not compatible with permeable paving.
	Rain Gardens and Bio-retention Areas		Planted features in which surface water can be stored or conveyed. They can be designed to allow infiltration, where appropriate. Rain gardens receive runoff from adjacent areas of paving	Incorporate into landscaping, good removal of pollutants, reduces runoff rates and volumes, low cost.	Requires considered use of water tolerant plant species.	✓ Limited area available for rain gardens, however localised features may be possible.

SUDS group	Technique	Image	Description	Advantages	Disadvantages	Suitable for use at site?
Infiltration	Infiltration trench, Infiltration basins and soakaway		Surface water runoff can be discharged directly to ground for infiltration by soakaways, basins, or trenches. A prerequisite is that both groundwater and ground conditions are appropriate to receive the quality and quantity of water generated	Reduces the volume of runoff, effective at pollutant removal, contributes to groundwater recharge, simple and cost-effective, easy performance observation.	Requires appropriate pre-treatment, basins require a large flat area, offset from foundations.	✗ Shallow water table precludes use of infiltration techniques
Conveyance	Filter Drains/ French drains		Shallow excavations filled with rubble or stone that create temporary subsurface storage for filtration of storm water runoff. Intercept water flow across a surface.	Hydraulic benefits achieved with filter trenches, trenches can be incorporated into site landscaping and fit well beside roads and car parks.	High clogging potential without effective pre-treatment, limited to small catchments, high cost of replacing filter material.	✗ Not compatible with the hard landscape design
	Vegetated Swales		Swales are linear planted drainage features in which surface water can be stored and conveyed. Swales can also enable local infiltration.	Drainage can be easily maintained and incorporated into landscaping, there is good removal of pollutants and discharge volumes. Generally low cost to implement.	Not suitable for steep areas, significant land take.	✗ Size of site prevents usage
	Rills and Canals		Formal linear drainage features in which surface water can be stored or conveyed. They can be incorporated with water features such as ponds or waterfalls where appropriate. Rills can be planted to further remove pollutants within the receiving water.	Reduce the need for underground pipework. Can provide some attenuation and amenity benefits through the visual use of water through the landscape. Possible reduction in runoff volume via plant uptake and infiltration.	Potential trip/wheel hazard, disabled access issues.	✗ Size of site prevents usage
Retention	Retention Pond		Provides both storm water attenuation and treatment. Runoff from each rain event is detained and treated in the pool. The retention time promotes pollutant removal through sedimentation.	Good removal of pollutants, can be used where groundwater is vulnerable, good community acceptability, high ecological, and amenity benefits.	No reduction in runoff volume, land take may limit use in high density sites.	✗ Size of site prevents usage

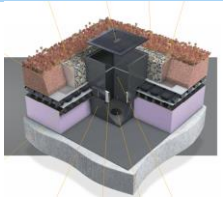
SUDS group	Technique	Image	Description	Advantages	Disadvantages	Suitable for use at site?
Detention	Detention Pond		Surface storage basins that provide flow control through attenuation. Normally dry and in certain situations the land may also function as a recreational facility.	Cater for a wide range of rainfall events, can be used where groundwater is vulnerable, potential for dual land use, easy to maintain.	Land take, little reduction in runoff volume, detention depths constrained by levels.	✗ Size of site prevents usage
	Blue Roofs		Blue roofs are used to attenuate water at roof level within either a cellular storage crate system above the roof itself.	The water is released slowly from the roof, through the use of controls such as orifices or restricted outlets. This reduces the demand on provision of below ground attenuation and reduces the discharge rate from the site.	Impose additional dead loading to the structure which may require a small increase in structural members. No water quality treatment if used without green/brown roofs	✓ Blue roof to be used: 336m^2 x 0.085m
	Below ground Storage		Oversized pipes, tank systems and modular geo-cellular systems that can be used to create a below ground storage structure.	This is modular and flexible, dual usage (infiltration/storage), high void ratios, and can be installed beneath trafficked and soft landscaped areas.	No water quality treatment.	✓ Below ground storage tanks have been incorporated into design and has limited the discharge rate

Table 6.4: SuDS Options for Development

7. Conclusion

This FRA has been developed in line with requirements of national and local planning policy. It has identified all sources of flood risk to the site and assessed the risk associate with these sources.

A summary of the main findings of the flood risk assessment is as follows:

- The development is located partially in Flood Zone 1 and the rest in Flood Zone 2 and is at risk of flooding from rivers or the sea, with between a 1 in 100 year and 1 in 1000 year probability.
- The proposed use for the development is classified as 'most vulnerable', in Flood Zone 2, this is allowed, passing the sequential test without the need to apply the exception test.
- The development is located in an area deemed to be at a risk of flooding from surface water, i.e. events with less than a 1 in 100 year probability of occurring.
- Flood risk to the development arising from groundwater is considered to be low due to the fact it does not lie in a groundwater emergence zone.
- Flood risk from artificial sources is considered to be low.

Despite the low risk of flooding occurring on the site, the following recommendations are proposed for inclusion in the design to reduce the impact of flooding:

- Finished floor levels to be set above the finished external ground levels. An FFL of 76.92m AOD will be provided as agreed with EA as part of a previous planning application.
- Site levels to be managed to prevent ponding adjacent to buildings.
- Proposed drainage network for the site to reduce existing surface water discharge rates and attenuate discharge volumes from the site through the incorporation of SuDS measures.
- Proposed drainage network to prevent above ground flooding for the 1 in 30 year storm event and prevent flooding from affecting buildings for the 1 in 100 year storm event factored for climate change.

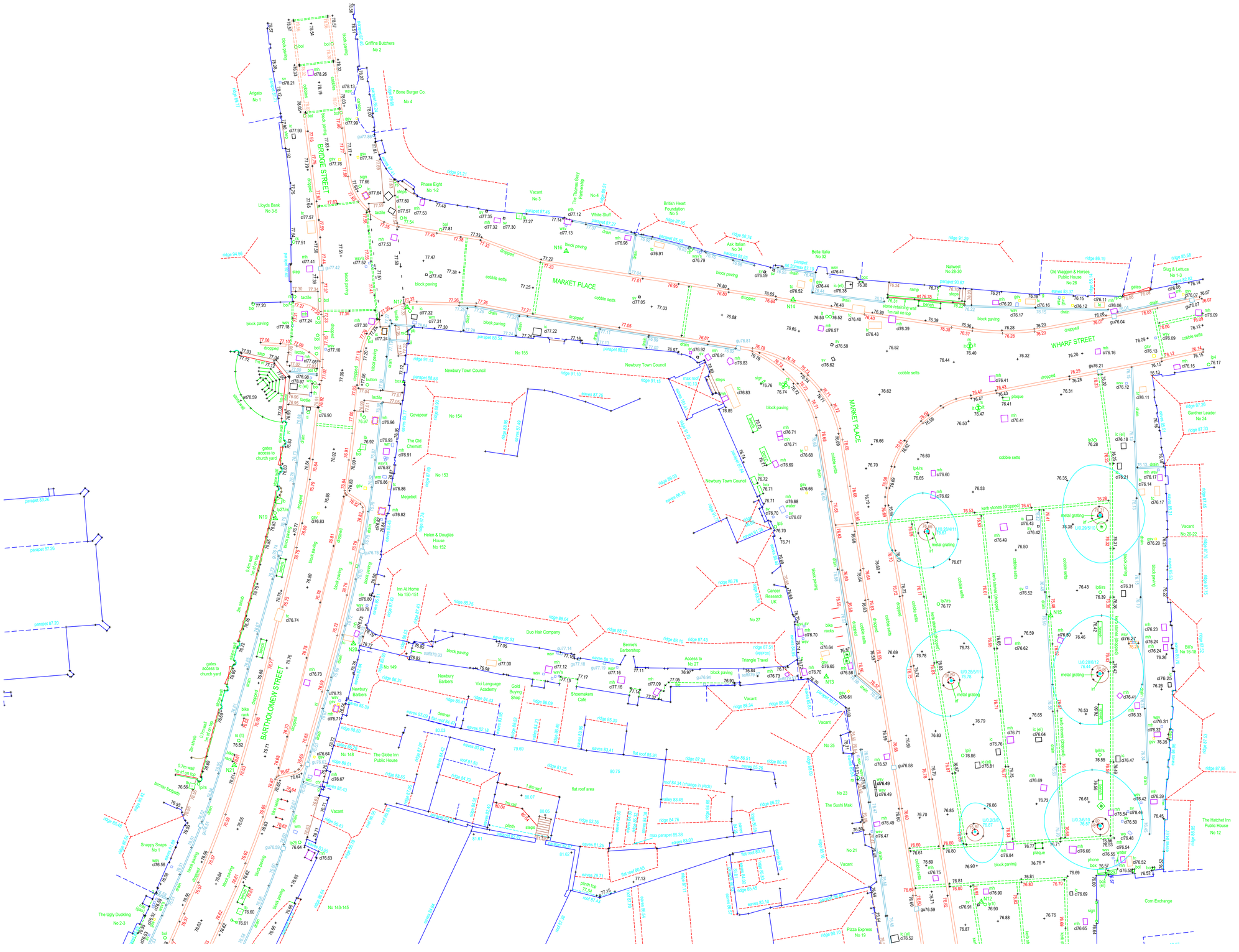
Please refer to the Drainage Statement RBG Document Reference 4508-RBG-ZZ-XX-RP-CV-00004 for full details of the drainage strategy for the development.

An assessment of the SuDS measures that can be included on the site has concluded that the following options are the most appropriate for inclusion in the design of the site drainage network:

- Rainwater harvesting
- Blue roof
- Below ground attenuation tanks
- Oil separators

Appendix A
Topographical Survey

Old Town, Newbury



TREES

A	Ash
AL	Alder
AP	Apple
B	Beech
C	Cedar
CB	Copper Beech
CH	Cherry
CY	Cypress
E	Elm
EL	Elder
EU	Eucalyptus
F	Fir
FM	Field Maple
FR	Fruit
HZ	Hazel
HC	Horse Chestnut
HO	Holm Oak
HW	Hawthorn
HY	Holly
JM	Japanese Maple
LB	Laburnum
LM	Lime
LO	Locust Tree
LR	Laurel
M	Maple
MG	Magnolia
OK	Oak
P	Pine
PA	Palm
PL	Plane
PM	Plum
PO	Poplar
PP	Pissardii Plum
PR	Pear
R	Redwood
RD	Red Oak
RH	Rhododendron
RO	Rowan
SB	Silver Birch
SC	Sweet Chestnut
SP	Scots Pine
SU	Spruce
SY	Sycamore
U	Unidentified
W	Willow
WN	Walnut
Y	Yew

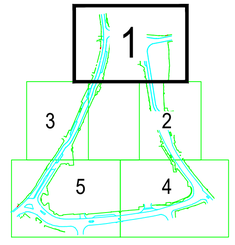
Species / Dia / Spread (max) / Ht
e.g. OK / 0.6 / 8 / 15

ABBREVIATIONS

BT	British Telecom
BOL	Bollard
CB	Control Box
CL	Cover Level
CTV	Cable Television
EL	Electric
EP	Electricity Pole
FH	Fire Hydrant
GSV	Gas Stop Valve
HT	Height
HVC	High Voltage Cable
IC	Inspection Cover
IL	Invert Level
LP	Lamp Post
MH	Man-Hole
MKR	Marker
MW	Monitoring Well
O/H	Overhead
R	Road Gully
PB	Post Box
PC	Pram Crossing
RNP	Road Name Plate
RS	Road Sign
S/A	Soakaway
ST	Stay / Strut
SV	Stop Valve (Unidentified)
TB	Telephone Box
TC	Telecom
TH	Trial Hole
TL	Traffic Light
TP	Telegraph Pole
UTL	Unable to Lift
VP	Vent pipe
WM	Water Meter
WSV	Water Stop Valve

FENCES

BWF	Barbed Wire Fence
CBF	Closed Board Fence
CP	Concrete Post
CPF	Chestnut Paling Fence
CWF	Chicken Wire Fence
IRF	Iron Railing Fence
PKF	Picket Fence
PRF	Post & Rail Fence
PWF	Post & Wire Fence
SCF	Security Fence
SP	Steel Post
WMF	Wire Mesh Fence
WPF	Wood Panel Fence



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LOCHAILORT INVESTMENTS	Client
KENNET CENTRE NEWBURY BERKSHIRE	Contract
SITE SURVEY	Title
396KC01 - SHEET 1	Drawing Number
OCTOBER 2019	Date
1:200 (at A1)	Scale
MJR ST	Surveyor(s)

TREES

A	Ash
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C	Cedar
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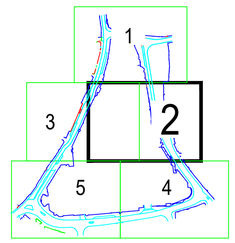

NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station RF1. Levels are related to OS datum determined from the National GPS Network using OSGM15.

No assumptions should be made regarding the interconnection of manholes. Drainage details have been obtained from surface inspection and should be verified if of critical importance.

The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

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LOCHAILORT INVESTMENTS	Client
KENNET CENTRE NEWBURY BERKSHIRE	Contract
SITE SURVEY	Title
396KC01 - SHEET 2	Drawing Number
OCTOBER 2019	Date
1:200 (at A1)	Scale
MJR ST	Surveyor(s)


MARKET PLACE
BEAR LANE
CHEAP STREET
BUS STOP
KENNET CENTRE
Pizza Express No 19
Zinc Nightclub No 17
The Kebab Korner No 15
Herblanc No 13
William Hill No 11
One Stop No 7-9
Coral No 3-5
Vacant No 1
Corn Exchange No 10
The Elephant at the Market Public House No 8
Newbury Learning Centre No 6
Sorting Office No 39
Vacant No 41
Walkabout Public House No 42
Classic Markings No 34
No 33 Save The Children
No 36 Unnamed Shop
The Cathrine Wheel Public House No 35
Sundaes Gelato No 29-30
Chenz No 28
courtyard
tarmac
skylights
skylight
flat roof 85.76
flat roof 84.88
flat roof 88.57
flat roof 80.39
flat roof 81.90
flat roof 82.17
flat roof 79.83
parapet 82.70
parapet 80.73
assumed building line
high retaining wall
fire escape
lift
brick wall
wall 1.92
brick column
concrete
channel blocks
cycle rack
tactile paving
decking
gate
bollard
bench
bin
sign
bike rack
tiles
cobble setts
block paving
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gas valve
water valve
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column
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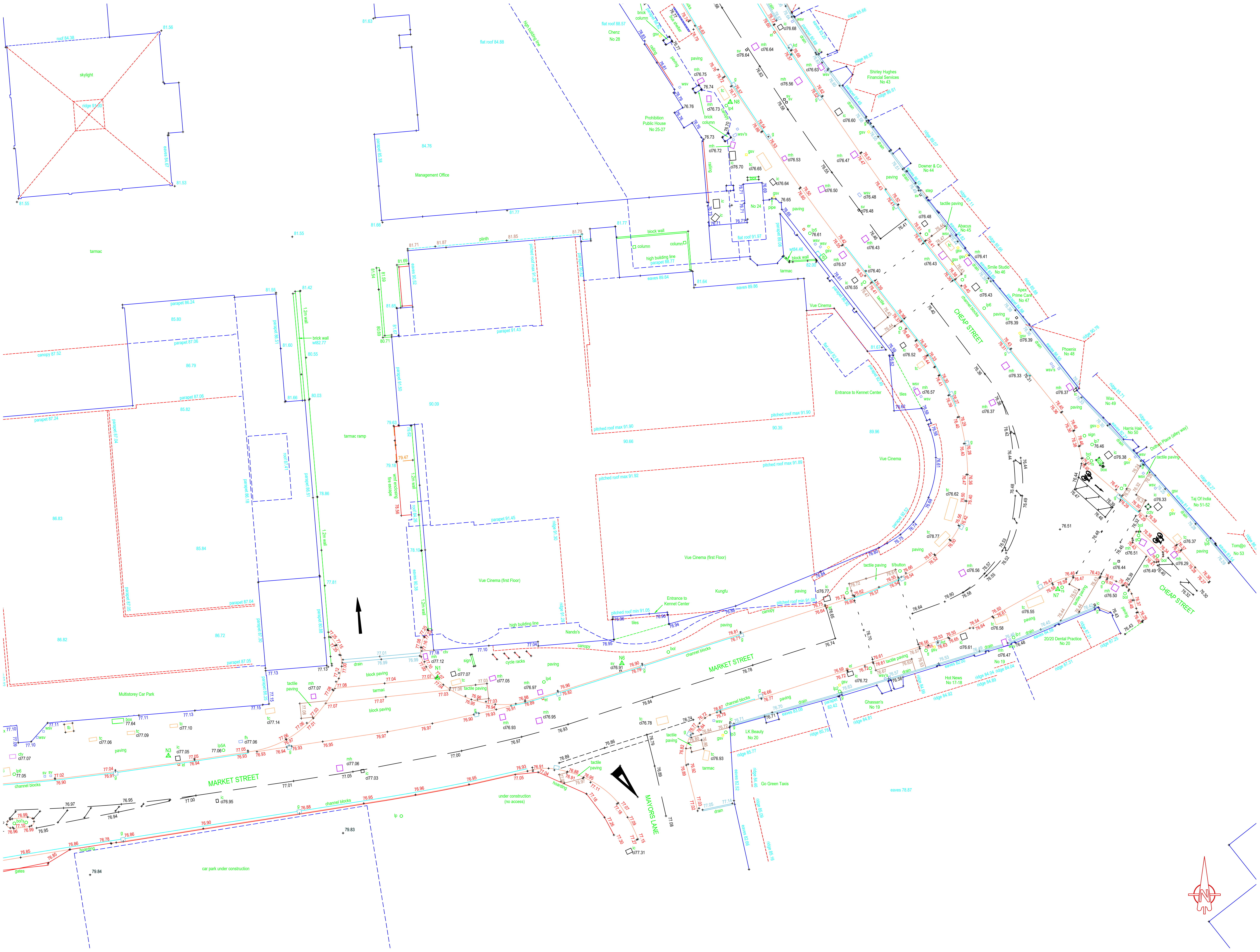


TREES

A	Ash
AL	Alder
AP	Apple
B	Beech
C	Cedar
CB	Copper Beech
CH	Cherry
CY	Cypress
E	Elm
EL	Elder
EU	Eucalyptus
F	Fir
FM	Field Maple
FR	Fruit
HZ	Hazel
HC	Horse Chestnut
HO	Holm Oak
HW	Hawthorn
HY	Holly
JM	Japanese Maple
LB	Laburnum
LM	Lime
LO	Locust Tree
LR	Laurel
M	Maple
MG	Magnolia
OK	Oak
P	Pine
PA	Palm
PL	Plane
PM	Plum
PO	Poplar
PP	Pissardii Plum
PR	Pear
R	Redwood
RD	Red Oak
RH	Rhododendron
RO	Rowan
SB	Silver Birch
SC	Sweet Chestnut
SP	Scots Pine
SU	Spruce
SY	Sycamore
U	Unidentified
W	Willow
WN	Walnut
Y	Yew

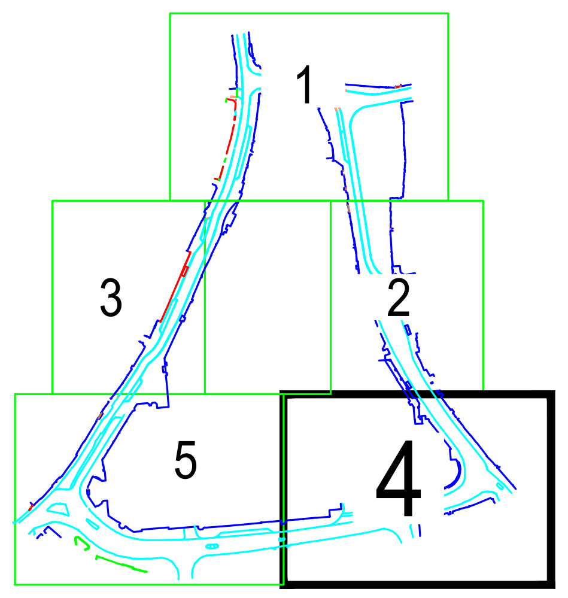
Species / Dia / Spread (max) / Ht
e.g. OK / 0.6 / 8 / 15

ABBREVIATIONS

BT	British Telecom
BOL	Bollard
CB	Control Box
CL	Cover Level
CTV	Cable Television
EL	Electric
EP	Electricity Pole
FH	Fire Hydrant
GSV	Gas Stop Valve
HT	Height
HVC	High Voltage Cable
IC	Inspection Cover
IL	Invert Level
LP	Lamp Post
MH	Man-Hole
MKR	Marker
MW	Monitoring Well
O/H	Overhead
G	Road Gully
PB	Post Box
PC	Pram Crossing
RNP	Road Name Plate
RS	Road Sign
S/A	Soakaway
ST	Stay / Strut
SV	Stop Valve (Unidentified)
TB	Telephone Box
TC	Telecom
TH	Trial Hole
TL	Traffic Light
TP	Telegraph Pole
UTL	Unable to Lift
VP	Vent pipe
WM	Water Meter
WSV	Water Stop Valve

FENCES

BWF	Barbed Wire Fence
CBF	Closed Board Fence
CP	Concrete Post
CPF	Chestnut Paling Fence
CWF	Chicken Wire Fence
IRF	Iron Railing Fence
PKF	Picket Fence
PRF	Post & Rail Fence
PWF	Post & Wire Fence
SCF	Security Fence
SP	Steel Post
WMF	Wire Mesh Fence
WPF	Wood Panel Fence



NOTES

The survey grid has been related to OS National Grid using a flat earth projection and metric scale factor of 1, centred on Station RF1. Levels are related to OS datum determined from the National GPS Network using OSGM15.

No assumptions should be made regarding the interconnection of manholes. Drainage details have been obtained from surface inspection and should be verified if of critical importance.

The position and height of adjacent buildings have been obtained using higher level reflectorless measurement and may not take account of single storey extensions or conservatories below the line of sight.

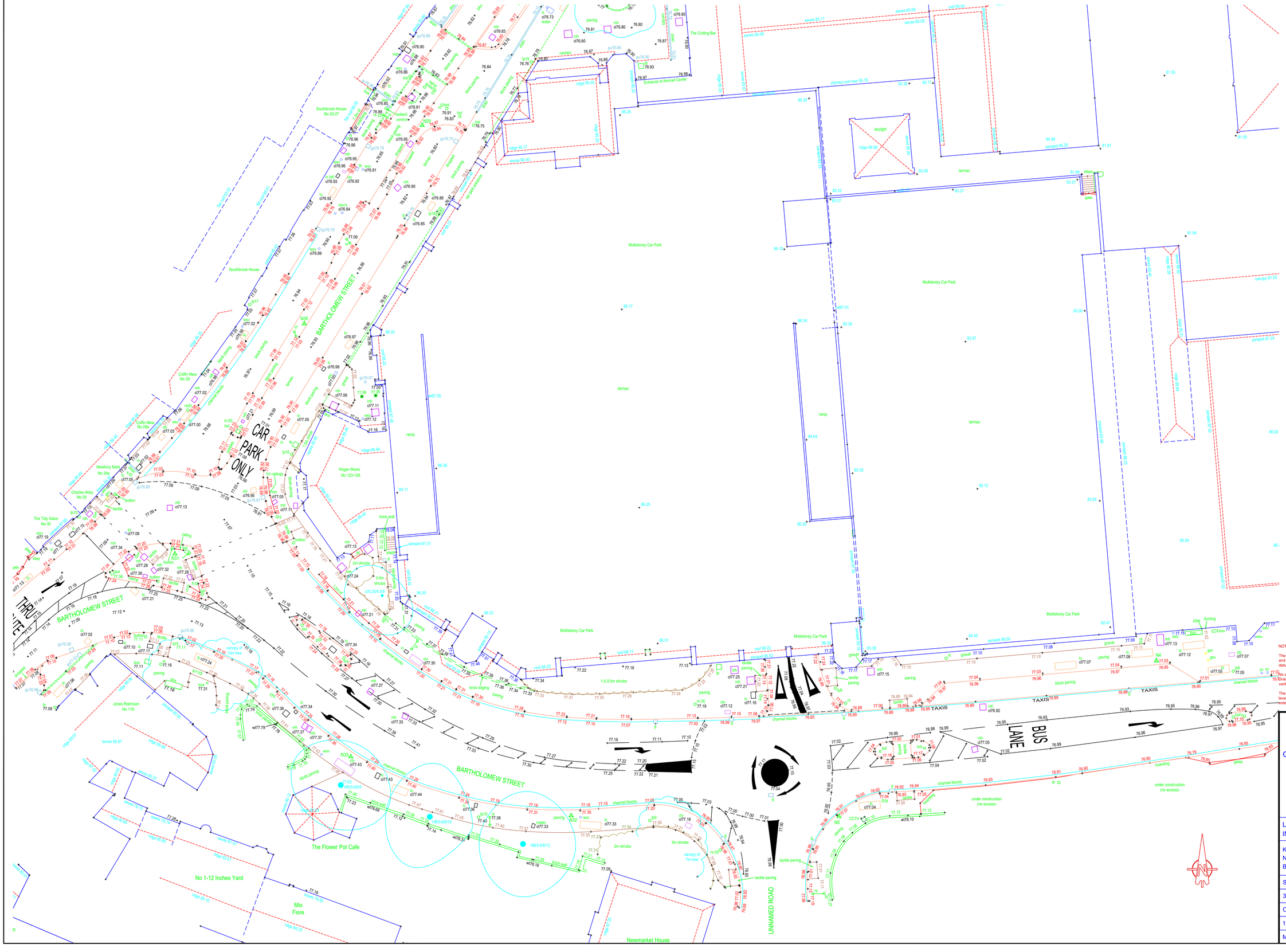
Geomatic Surveyors

siteline

Unit E, Woodside
34 Parham Drive
Eastleigh
SO50 4NU

t: 023 8081 1081
w: siteline.co.uk

LOCHAILORT INVESTMENTS	Client
KENNET CENTRE NEWBURY BERKSHIRE	Contract
SITE SURVEY	Title
396KC01 - SHEET 4	Drawing Number
OCTOBER 2019	Date
1:200 (at A1)	Scale
MJR ST	Surveyor(s)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THRU TRAFFIC
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UNNAMED ROAD
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ramp
The Cutting Bar
Entrance to Kennet Center
skylight
steps
gate
Southbrook House
No 25-27
Southbrook House
Coffin Mew
No 28
Coffin Mew
No 29a
Newbury Nails
No 29a
Charles Abby
No 29
The Tidy Salon
No 30
Jones Robinson
No 118
Hogan Music
No 123-126
The Flower Pot Cafe
No 1-12 Inches Yard
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Fiore
Newmarket House
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channel blocks
brick wall
hoarding
under construction
(no access)
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3m shrubs
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Appendix B
Thames Water Asset Location Plan

Old Town, Newbury

Asset location search

Property Searches

Stuart Michael Associates Ltd
Coombe House Coombe House

THATCHAM
RG19 4JF

Search address supplied

The Kennet Centre
0
The Kennet Centre
Newbury
RG14 5EN

Your reference 6377

Our reference ALS/ALS Standard/2020_4189846

Search date 18 May 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

Asset location search

Property Searches

Search address supplied: The Kennet Centre, 0, The Kennet Centre, Newbury, RG14 5EN

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 searchprovides 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.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and

pressure test to be carried out for a fee.

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

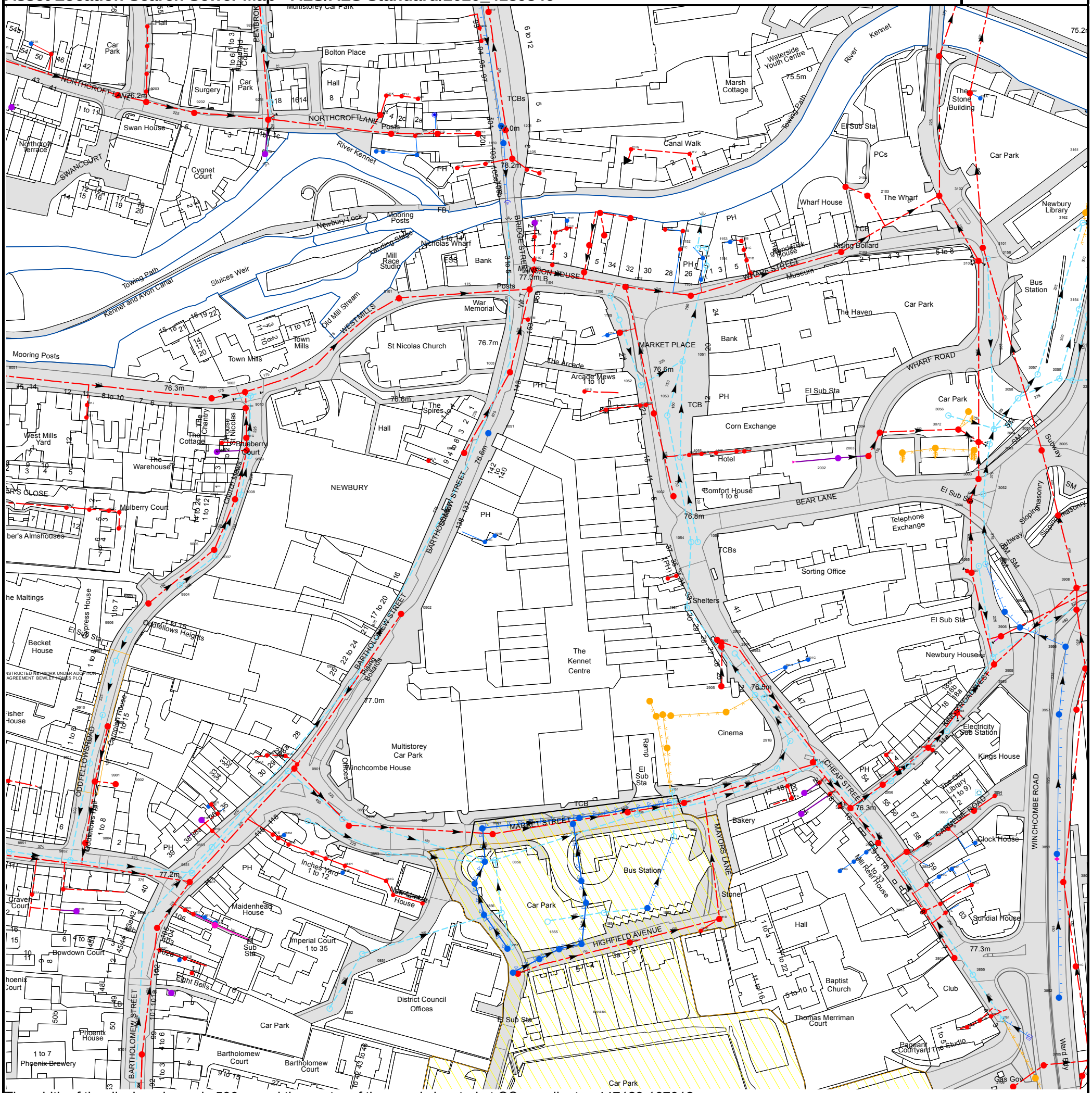
Clean Water queries

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_4189846



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 447123,167012

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
3851	77.8	76.65
301A	n/a	n/a
3852	79.89	79.18
3957	76.67	75.87
3801	77.97	73.07
3956	77.07	75.76
381C	n/a	n/a
3904	75.69	74.07
3908	n/a	n/a
3903	77.09	74.67
3909	n/a	n/a
2906	76.42	71.99
381G	n/a	n/a
381I	n/a	n/a
381L	n/a	n/a
3959	n/a	n/a
381B	n/a	n/a
3853	76.97	76.5
381F	n/a	n/a
3802	78.28	73.36
3958	76.37	72
3004	76.28	71.74
3907	76.04	71.82
381J	n/a	n/a
3855	n/a	n/a
381E	n/a	n/a
381D	n/a	n/a
3854	n/a	76.88
3953	76.43	73.82
3065	76.02	74.08
3052	76.48	74.32
3064	75.95	74.47
3952	76.22	73.88
3905	76.38	71.98
381A	n/a	n/a
3906	76.04	74.52
3954	76.09	74.53
3955	76.1	74.6
371A	n/a	n/a
371B	n/a	n/a
371C	n/a	n/a
3751	78.56	n/a
3706	78.66	72.35
3705	80.73	73.29
3702	76.45	73.4
3701	76.58	73.18
2002	n/a	n/a
2102	76.13	73.33
2104	76.23	74.34
2103	76.02	73.93
2003	76.2	74.4
2004	76.19	74.2
3102	75.74	71.49
3056	76.03	75.09
3072	76.02	73.77
3001	75.9	71.71
3103	75.89	71.68
3003	76.21	71.7
3101	75.89	71.71
3158	75.83	74.78
3053	76.02	74.17
3054	75.87	74.55
3055	76.73	75.55
3058	75.78	75.27
3057	76.03	75.27
3005	76.73	71.51
3050	n/a	n/a
3060	77.26	75.29
3154	76.25	73.87
3162	76.07	75.22
3155	77.89	75.49
291A	n/a	n/a
291H	n/a	n/a
291E	n/a	n/a
291B	n/a	n/a
281A	n/a	n/a
281B	n/a	n/a
281D	n/a	n/a
291G	n/a	n/a
2901	76.38	72.48
2952	76.31	74.01
291F	n/a	n/a
281C	n/a	n/a
281G	n/a	n/a
281E	n/a	n/a
2804	76.49	72
281H	n/a	n/a
281I	n/a	n/a
2801	76.69	n/a
2956	76.34	n/a
291J	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2951	76.45	73.93
291I	n/a	n/a
2852	76.96	75.92
2803	76.89	75.28
291D	n/a	n/a
3803	n/a	n/a
281F	n/a	n/a
111F	n/a	n/a
1156	76.64	76.16
1155	76.61	76.02
111G	n/a	n/a
1102	76.47	73.76
101D	n/a	n/a
1052	77.44	75.72
101E	n/a	n/a
1001	76.62	74.54
1053	76.71	75.07
191B	n/a	n/a
1002	76.7	74.71
191C	n/a	n/a
1055	76.7	75.25
1051	76.31	74.94
1951	76.85	75.24
101H	n/a	n/a
1054	76.77	75.26
1101	76.06	73.65
1056	76.72	74.89
111L	n/a	n/a
101G	n/a	n/a
101F	n/a	n/a
2903	76.73	74.53
201C	n/a	n/a
201B	n/a	n/a
211E	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a
1854	78.33	77.05
1801	76.98	72.48
181G	n/a	n/a
1859	77.09	74.17
1853	78.05	76.8
1851	n/a	n/a
1852	77.39	75.76
181A	77	75.76
181B	77.01	72.68
181C	n/a	n/a
181D	n/a	n/a
2905	76.74	74.99
2902	76.72	74.35
2904	76.73	74.61
2953	76.66	75.24
2954	76.47	75.34
291C	n/a	n/a
1154	76.22	74.84
111S	n/a	n/a
211D	n/a	n/a
111O	n/a	n/a
111K	n/a	n/a
211C	n/a	n/a
111C	n/a	n/a
1153	76.02	74.79
1152	75.92	74.79
111R	n/a	n/a
1163	n/a	n/a
211A	n/a	n/a
211B	n/a	n/a
111N	n/a	n/a
1160	n/a	n/a
111Q	n/a	n/a
111B	n/a	n/a
111A	n/a	n/a
111P	n/a	n/a
111H	n/a	n/a
111T	n/a	n/a
1161	n/a	n/a
1162	n/a	n/a
111I	n/a	n/a
111J	n/a	n/a
111U	n/a	n/a
011D	n/a	n/a
0952	76.98	75.62
0851	77.73	76.87
081G	n/a	n/a
0853	77.28	76.23
081F	n/a	n/a
081E	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a
0801	77.15	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
0856	76.04	74.18
1856	77.9	76.21
n/a	n/a	n/a
1857	77.74	76.38
n/a	n/a	n/a
181E	n/a	n/a
n/a	n/a	n/a
1855	78.16	77.28
n/a	n/a	n/a
n/a	n/a	n/a
3204	78.57	n/a
3202	75.88	71.12
321A	n/a	n/a
821M	n/a	n/a
9203	76.11	74.17
9204	76.11	74.35
921F	n/a	n/a
921E	n/a	n/a
821B	n/a	n/a
921D	n/a	n/a
821A	n/a	n/a
921C	n/a	n/a
011E	n/a	n/a
1105	77.51	74.46
011C	n/a	n/a
111V	n/a	n/a
911A	n/a	n/a
011B	n/a	n/a
011A	n/a	n/a
111W	n/a	n/a
1159	76.96	74.46
021A	n/a	n/a
021E	n/a	n/a
021D	n/a	n/a
021C	n/a	n/a
1201	76.9	74.3
1251	76.89	74.98
9201	75.97	73.81
9001	76.34	74.57
9005	76.91	75.35
9007	76.93	75.4
901F	n/a	n/a
901K	n/a	n/a
9004	76.65	75.12
9008	76.58	75.27
9002	76.36	74.48
901H	n/a	n/a
901G	n/a	n/a
9006	76.44	74.88
9009	76.43	75.06
9010	76.27	74.61
0101	76.48	74.25
0902	76.75	74.29
001A	n/a	n/a
0001	76.65	n/a
001C	n/a	n/a
0051	76.74	75
001B	n/a	n/a
1003	76.69	74.96
111M	n/a	n/a
1104	77.22	74.02
1103	77.46	73.98
1164	n/a	n/a
101B	n/a	n/a
101C	n/a	n/a
021B	n/a	n/a
9202	76.12	74.07
9251	76.02	75.16
021I	n/a	n/a
021J	n/a	n/a
021K	n/a	n/a
021H	n/a	n/a
021G	n/a	n/a
9252	76.21	75.2
021F	n/a	n/a
0852	77.78	77.05
981G	n/a	n/a
981H	n/a	n/a
981K	n/a	n/a
981J	77.22	76.56
981I	n/a	n/a
9801	77.24	n/a
9851	77.3	74.7
081K	n/a	n/a
081H	n/a	n/a
081I	n/a	n/a
081L	n/a	n/a
9853	77.25	75.82
081J	n/a	n/a
981T	n/a	n/a
081M	n/a	n/a
981S	n/a	n/a
981Q	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
0802	77.23	73.16
0854	77.3	76.45
981P	n/a	n/a
0855	77.19	74.44
981O	n/a	n/a
981M	n/a	n/a
981N	n/a	n/a
0951	77.17	74.54
0901	77.17	73.3
091A	n/a	n/a
991A	n/a	n/a
9701	77.67	75.05
981C	n/a	n/a
981F	n/a	n/a
981E	n/a	n/a
981B	n/a	n/a
9802	77.34	74.51
981D	n/a	n/a
981L	n/a	n/a
881A	n/a	n/a
881G	n/a	n/a
9852	76.21	74.81
8851	75.99	74.85
9804	76.23	74.26
8954	n/a	n/a
9911	n/a	n/a
9901	76.09	74.94
9910	76.23	75.28
9909	76.36	75.09
9907	76.44	75.38
9902	75.91	n/a
9906	76.65	75.46
9903	76.87	75.79
9904	77.03	75.52
901A	n/a	n/a
901B	n/a	n/a
901C	n/a	n/a
901D	n/a	n/a
901E	n/a	n/a
901I	n/a	n/a
901J	n/a	n/a

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

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

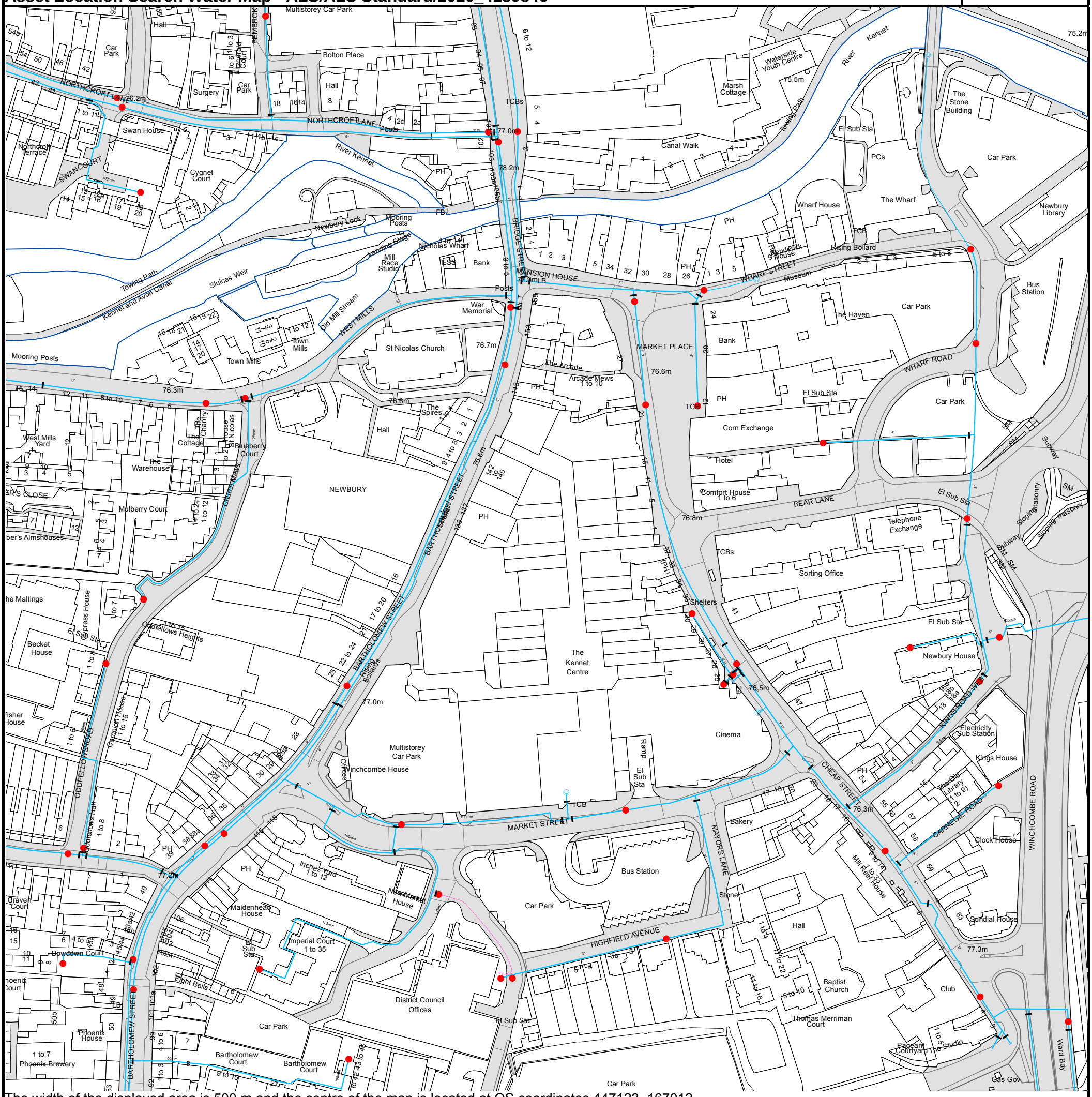
Other Sewer Types (Not Operated or Maintained by Thames Water)

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Gulley
- Culverted Watercourse
- Proposed
- Abandoned Sewer

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.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. 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.

Asset Location Search Water Map - ALS/ALS Standard/2020_4189846


NORTHCROFT LANE
Multistorey Car Park
Bolton Place
Hall
Surgery
Car Park
Swan House
Northcroft Terrace
SWANCOURT
Cygnet Court
River Kennet
PEMBROKE
Fitzgerald Court
Canal Walk
Towing Path
Marsh Cottage
Waterside Youth Centre
The Stone Building
Car Park
PCs
The Wharf
Wharf House
Newbury Library
Rising Bollard
Mooring Posts
Newbury Lock
Landing Stage
Nicholas Wharf
Mill Race Studio
Sluices Weir
Kennet and Avon Canal
Old Mill Stream
WEST MILLS
Town Mills
War Memorial
St Nicolas Church
BRIDGE STREET
MANSION HOUSE
WHARF STREET
Museum
Bank
The Haven
Bus Station
MARKET PLACE
The Arcade
Arcade Mews
WHARF ROAD
Corn Exchange
Hotel
Comfort House
BEAR LANE
Telephone Exchange
Sorting Office
Shelters
Subway
Stepping masonry
West Mills Yard
The Cottage
The Warehouse
Blueberry Court
Mulberry Court
NEWBURY
BARTHOLOMEW STREET
Oddfellows Heights
Becket House
Cypress House
Oddfellows Hall
Carnation House
ODDFELLOWS ROAD
The Kennet Centre
Multistorey Car Park
Minchcombe House
Offices
Ramp
Cinema
Bus Station
Car Park
MARKET STREET
MAYORS LANE
Maidenhead House
New Market House
Imperial Court
Inches Yard
Eight Bells
PH
Bowdown Court
Graver Court
Phoenix House
Phoenix Brewery
Bartholomew Court
District Council Offices
Car Park
HIGHFIELD AVENUE
Baptist Church
Thomas Merriman Court
Pageant Courtyard
The Studio
Club
Bakery
Stone
Hall
Newbury House
KINGS ROAD WEST
Electricity Sub Station
Kings House
The Gilt Library
CARNEGIE ROAD
CHEAP STREET
Clock House
Sundial House
WINCHCOMBE ROAD
Ward Bdy
Gas Gov
Mill Green House
Chandlers House
Ropewalk House
Dencliffe House
Rising Bollard
Shelters
Telephone Exchange
Subway
Stepping masonry
Sorting Office
Newbury House
Electricity Sub Station
Kings House
The Gilt Library
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Sundial House
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Thomas Merriman Court
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The Studio
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Ward Bdy
Car Park
Bus Station
Cinema
Multistorey Car Park
Minchcombe House
Offices
Ramp
District Council Offices
Bartholomew Court
Phoenix Brewery
Phoenix House
Becket House
Oddfellows Hall
Oddfellows Heights
Carnation House
Cypress House
Maidenhead House
New Market House
Imperial Court
Inches Yard
Eight Bells
Bowdown Court
Graver Court
Mulberry Court
West Mills Yard
The Cottage
The Warehouse
Blueberry Court
Chandlers House
Ropewalk House
Dencliffe House
Mill Green House
Corn Exchange
Hotel
Comfort House
Marsh Cottage
Waterside Youth Centre
The Stone Building
Car Park
PCs
The Wharf
Wharf House
Newbury Library
Canal Walk
Towing Path
River Kennet
Swan House
Northcroft Terrace
Cygnet Court
Surgery
Hall
Fitzgerald Court
Nicholas Wharf
Mooring Posts
Landing Stage
Mill Race Studio
Sluices Weir
Kennet and Avon Canal
Old Mill Stream
WEST MILLS
Town Mills
War Memorial
St Nicolas Church
The Arcade
Arcade Mews
Bank
The Haven
Museum
Rising Bollard
Dencliffe House
Telephone Exchange
Subway
Stepping masonry
Sorting Office
Shelters

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

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.

Appendix C
Environmental Agency Product 4 Information

Old Town, Newbury

Product 4 (Detailed Flood Risk) for the Kennet Centre, Newbury
Our Ref: THM_172094

Product 4 is designed for developers where Flood Risk Standing Advice FRA (Flood Risk Assessment) Guidance Note 3 Applies. This is:

i) "all applications in Flood Zone 3, other than non-domestic extensions less than 250 sq metres; and all domestic extensions", and
ii) "all applications with a site area greater than 1 ha" in Flood Zone 2.

Product 4 includes the following information:

Ordnance Survey 1:25k colour raster base mapping;
Flood Zone 2 and Flood Zone 3;
Relevant model node locations and unique identifiers (for cross referencing to the water levels, depths and flows table);
Model extents showing *defended* scenarios;
FRA site boundary (where a suitable GIS layer is supplied);
Flood defence locations (where available/relevant) and unique identifiers; (supplied separately)
Flood Map areas benefiting from defences (where available/relevant);
Flood Map flood storage areas (where available/relevant);
Historic flood events outlines (where available/relevant, not the Historic Flood Map) and unique identifiers;
Statutory (Sealed) Main River (where available within map extents);

A table showing:

i) Model node X/Y coordinate locations, unique identifiers, and levels and flows for *defended* scenarios.
ii) Flood defence locations unique identifiers and attributes; (supplied seperately)
iii) Historic flood events outlines unique identifiers and attributes; and
iv) Local flood history data (where available/relevant).

Please note:

If you will be carrying out computer modelling as part of your Flood Risk Assessment, please request our guidance which sets out the requirements and best practice for computer river modelling.

This information is based on that currently available as of the date of this letter. You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements have been made. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

This information is provided subject to the enclosed notice which you should read.

This letter is not a Flood Risk Assessment. The information supplied can be used to form part of your Flood Risk Assessment. Further advice and guidance regarding Flood Risk Assessments can be found on our website at:

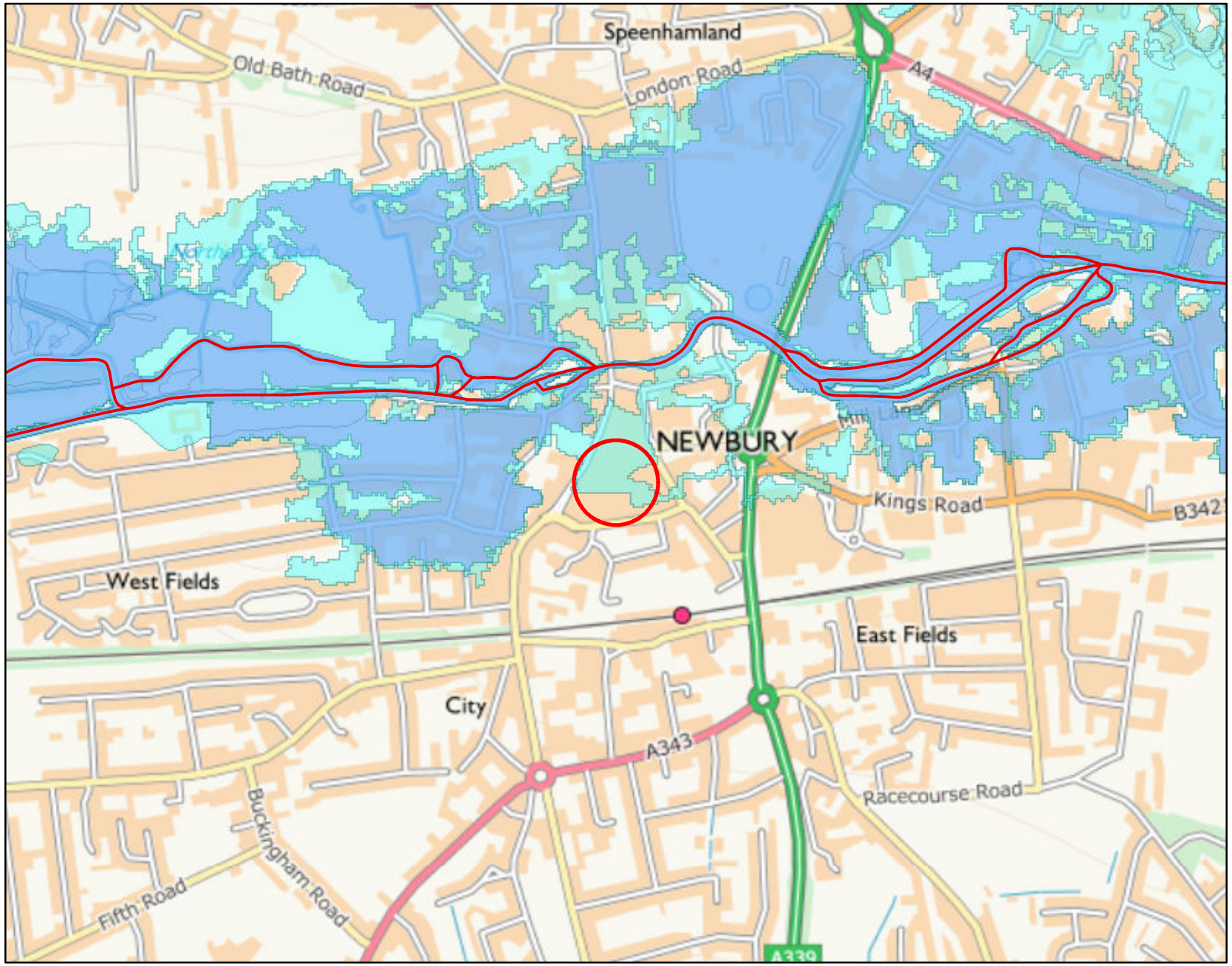
https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities

If you would like advice from us regarding your development proposals you can complete our pre application enquiry form which can be found at:

https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Red Kite House, Howbery Park, Wallingford, Oxon OX10 8BD
Customer services line: 08708 506 506
Email: WTenquiries@environment-agency.gov.uk

Flood Map for Planning centred on Kennet Centre, Newbury
Created on 28/05/2020 REF: THM_172094



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- Flooding from rivers or sea (FZ3)
- Extent of extreme flood (FZ2)

Flooding from rivers or sea without defences (Flood Zone 3) shows the area that could be affected by flooding:
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

The Extent of an extreme flood (Flood Zone 2) shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Defence information

THM_172094

Defence Location:	No defences on Main River
Description:	This location is not currently protected by any formal defences and we do not currently have any flood alleviation works planned for the area. However we continue to maintain certain watercourses and the schedule of these can be found on our internet pages.

Model information

THM_172094

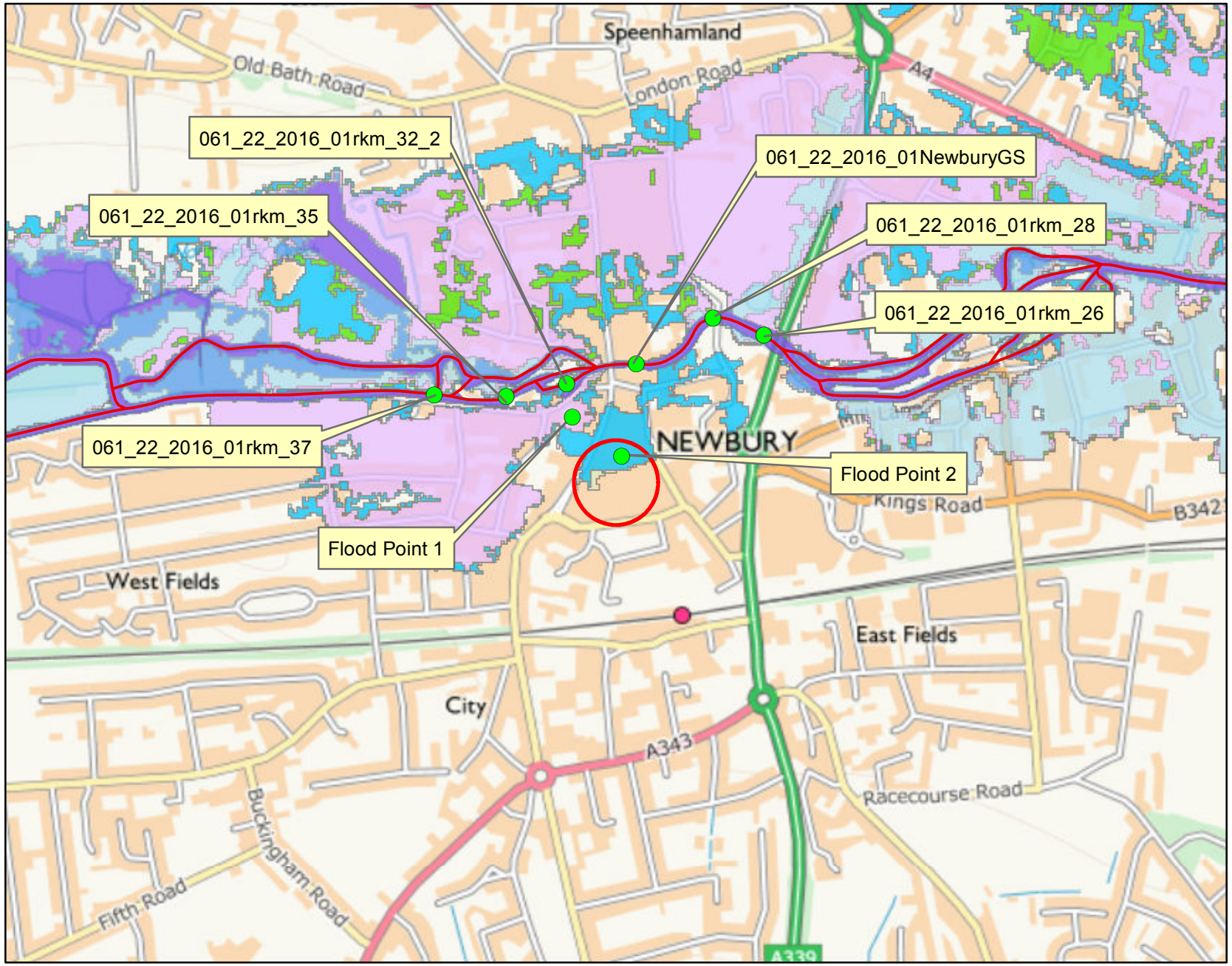
Model: Kennet and Lambourn (Newbury) 2016

Description: The information provided is taken from the Newbury flood alleviation scheme following the defences being built in November 2013. Model re-run to include new climate change allowances in July 2017. The study was carried out using 2D modelling software (Flood Modeller-Tuflow).

Model design runs and Mapped Outputs:
- 1 in 5 / 20% AEP
- 1 in 20 / 5% AEP
- 1 in 50 / 2% AEP
- 1 in 75 / 1.3% AEP
- 1 in 100 / 1% AEP
- 1 in 100+15% / 1% AEP with 15% AEP climate change allowance
- 1 in 100+25% / 1% AEP with 20% AEP climate change allowance
- 1 in 100+35% / 1% AEP with 25% AEP climate change allowance
- 1 in 100+35% / 1% AEP with 35% AEP climate change allowance
- 1 in 100+70% / 1% AEP with 70% AEP climate change allowance
- 1 in 200 / 0.5% AEP
- 1 in 1000 / 0.1% AEP

Model accuracy:
Levels ± 250mm

FRA Map centred on Kennet Centre, Newbury
Created on 28/05/2020 REF: THM_172094



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Kennet Model Node Data
- Main River
- 20% AEP Defended Flood Outline
- 5% AEP Defended Flood Outline
- 1% AEP Defended Flood Outline
- 1%+25% AEP Defended Flood Outline
- 1%+35% AEP Defended Flood Outline
- 1%+70% AEP Defended Flood Outline
- 0.1% AEP Defended Flood Outline

AEP = Annual Exceedance Probability
The probability of a flood of a particular magnitude, or greater, occuring in any given year

Where available climate change extents have been calculated with an additional flow added to an AEP event. An example of how this is written is 1%+20% AEP.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Modelled in-channel flood flows and levels

THM_172094

The modelled flood levels and flows for the closest most appropriate model node points for your site that are within the river channel are provided below:

				Flood Levels (mAOD)							
Node label	Model	Easting	Northing	20% AEP	5% AEP	1% AEP	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
061_22_2016_01rkm_26	Kennet and Lambourn (Newbury) 2016	447382	167219	75.20	75.38	75.60	75.65	75.66	75.68	75.72	75.72
061_22_2016_01rkm_28	Kennet and Lambourn (Newbury) 2016	447290	167250	75.22	75.40	75.63	75.70	75.71	75.73	75.77	75.77
061_22_2016_01NewburyGS	Kennet and Lambourn (Newbury) 2016	447153	167168	75.29	75.48	75.69	75.74	75.75	75.76	75.79	75.80
061_22_2016_01rkm_32_2	Kennet and Lambourn (Newbury) 2016	447029	167132	75.50	75.81	76.21	76.40	76.44	76.52	76.71	76.72
061_22_2016_01rkm_35	Kennet and Lambourn (Newbury) 2016	446921	167110	76.80	76.87	76.97	77.05	77.06	77.09	77.16	77.16
061_22_2016_01rkm_37	Kennet and Lambourn (Newbury) 2016	446793	167113	76.81	76.89	76.99	77.08	77.10	77.12	77.19	77.20

				Flood Flows (m3/s)							
Node label	Model	Easting	Northing	20% AEP	5% AEP	1% AEP	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
061_22_2016_01rkm_26	Kennet and Lambourn (Newbury) 2016	447382	167219	18.71	27.02	39.71	46.24	47.52	49.64	54.96	55.19
061_22_2016_01rkm_28	Kennet and Lambourn (Newbury) 2016	447290	167250	18.71	27.02	39.74	46.89	48.40	50.96	57.46	57.77
061_22_2016_01NewburyGS	Kennet and Lambourn (Newbury) 2016	447153	167168	18.71	27.01	39.74	46.89	48.40	50.96	57.48	57.75
061_22_2016_01rkm_32_2	Kennet and Lambourn (Newbury) 2016	447029	167132	4.21	5.21	6.84	8.12	8.43	8.92	10.17	10.23
061_22_2016_01rkm_35	Kennet and Lambourn (Newbury) 2016	446921	167110	4.57	5.28	6.90	8.17	8.48	9.05	10.23	10.31
061_22_2016_01rkm_37	Kennet and Lambourn (Newbury) 2016	446793	167113	12.61	17.22	18.68	19.01	18.84	18.85	19.00	19.02

Note:

Due to changes in guidance on the allowances for climate change, the 20% increase in river flows should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Modelled floodplain flood levels

The modelled flood levels for the closest most appropriate model grid cells for your site are provided below:

				flood levels (mAOD)						
2D grid cell reference	Model	Easting	Northing	20% AEP	5% AEP	1% AEP	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
Flood Point 1	Kennet and Lambourn (Newbury) 2016	447,036	167,074	No Data	No Data	No Data	76.55	76.62	76.77	76.78
Flood Point 2	Kennet and Lambourn (Newbury) 2016	447,124	167,008	No Data	No Data	No Data	No Data	No Data	76.74	76.75

This flood model has represented the floodplain as a grid.
The flood water levels have been calculated for each grid cell.

Note:
Due to changes in guidance on the allowances for climate change, the 20% increase in river flows should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Historic flood data

THM_172094

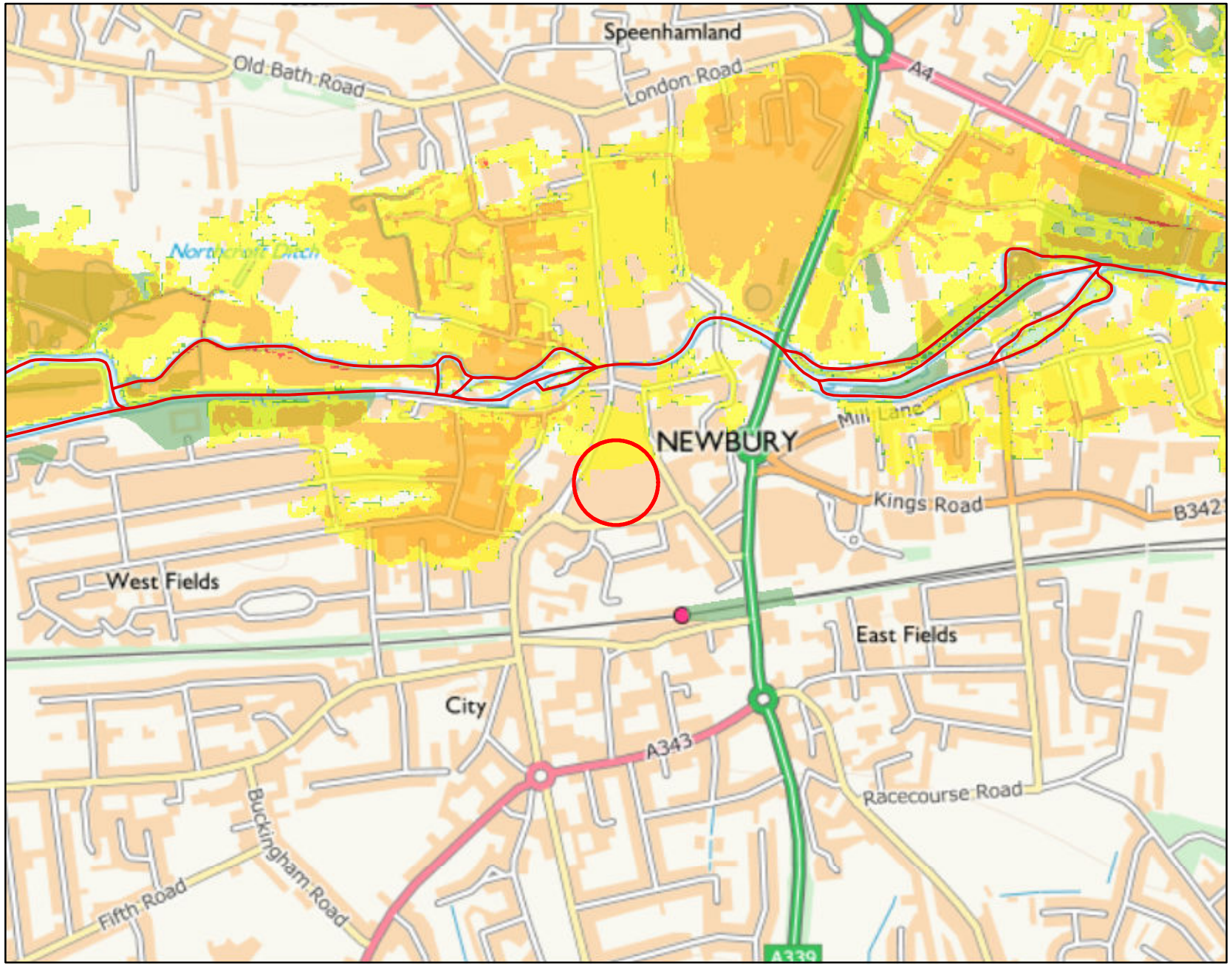
Our records show that the area of your site has been affected by flooding.
Information on the floods that have affected your site is provided in the table below:

Flood Event Code	Flood Event Name	Start Date	End Date	Source of Flooding	Cause of Flooding
No Historic Data at Site					

Please note the Environment Agency maps flooding to land not individual properties. Floodplain extents are an indication of the geographical extent of a historic flood. They do not provide information regarding levels of individual properties, nor do they imply that a property has flooded internally.

Start and End Dates shown above may represent a wider range where the exact dates are not available.

1%+35% CC AEP Hazard Map centred on Kennet Centre, Newbury
Created on 28/05/2020 REF: THM_172094



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- Low hazard
- Hazard to some
- Hazard to most
- Hazard to all
- Flood Event Outline

For hazard and debris factor we used HR Wallingford and Environment Agency (May 2008) supplementary note on flood hazard ratings and thresholds for development planning and control purpose. The following calculation is used:

HR = d x (v+0.5) + DF

HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Hazard Mapping

THM_17209

Hazard Mapping methodology:

To calculate flood hazard with the debris factor we have used the supplementary note to Flood Risk to People Methodology (see below).
The following calculation is used:

HR = d x (v+0.5) + DF

Where HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

The resultant hazard rating is then classified according to:

Flood Hazard	Colour	Hazard to People Classification	
Less than 0.75		Very low hazard	- Caution
0.75 to 1.25		Danger for some	- includes children, the elderly and the infirm
1.25 to 2.0		Danger for most	- includes the general public
More than 2.0		Danger for all	- includes the emergency services

REF: HR Wallingford and Environment Agency (May 2008) Supplementary note of flood hazard ratings and thresholds for development planning and control purpose – Clarification of the Table 113.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1

Red Kite House, Howbery Park, Wallingford, Oxon OX10 8BD
Customer services line: 08708 506 506
Email: WTenquiries@environment-agency.gov.uk

Appendix D
Environment Agency Consultation

Old Town, Newbury

Meeting Minutes

Robert Bird Group
Member of the Surbana Jurong Group

EA Meeting: 4508 Kennet Centre

Date:	08th October 2020	
Time:	11:30	
Location:	MS Teams	
Attendees:	James Croucher (Lochailort)	JC
	Hugo Haig (Lochailort)	HH
	Simon Rainsford (Envision)	SR
	Mark Kirbyshire (Envision)	MK
	Edmond Veillard (RBG)	EV
	Alex Swann (EA)	AS
	Jack Moeran (EA)	JM
	Jess Barnes (EA)	JB
	Nicola Geppert (EA)	NG
Apologies:		
Minutes:	EV / SR	
Distribution:	As above	
Next Meeting:	N/A	

Agenda

1. Site Description, Location, Development Type

2. Flood Risk
    - EA requirements for the site specific FRA
    - EA modelled flood levels
    - Raising of onsite levels – impact of 300mm thresholds on site and to adjacent properties
    - Property level flood risk mitigation measures

3. Groundwater Abstraction
    - Principle of abstraction for drinking water
    - Maintenance and obligations
    - Licencing requirements & timescales
    - Key Contacts

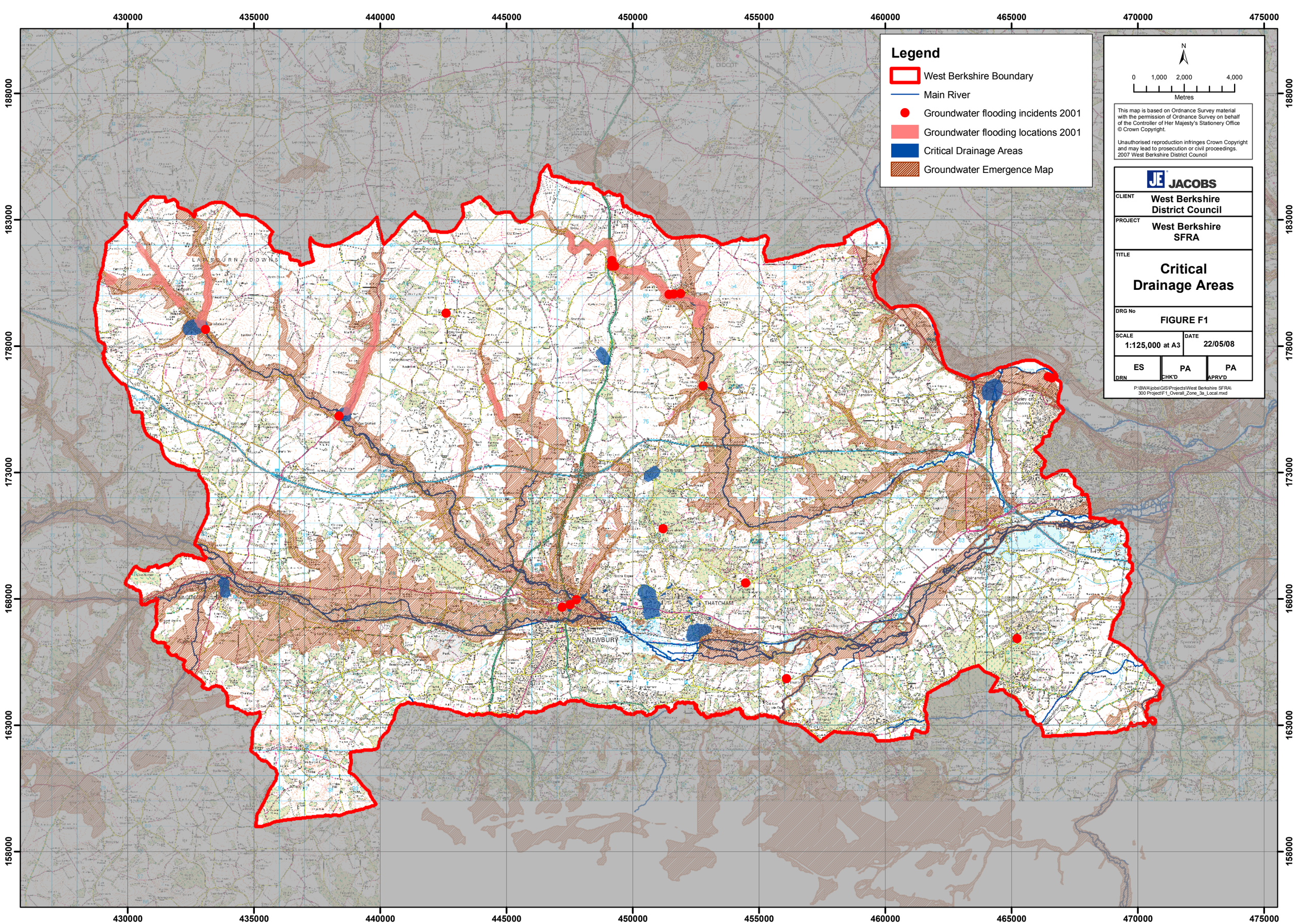
4. Ground Source Heat Pump
    - System Overview
    - Design Parameters
    - Licencing Requirements & Timescales
    - Key Contacts

5. AOB and Next steps

		ITEM / ACTION	ACTION	DATE
1.0		**Site Description, Location, Development Type**		
	1.1	Entire site to be redeveloped with exception of cinema and MSCP which are to be retained with modifications. No basements proposed on the site.	-	
2.0		**Flood Risk**		
	2.1	Site in Flood Zone 2 – all proposed development types compatible with the Flood Zone.	-	
	2.2	EA note that the 1% AEP + 35% CC flood level for the site is 76.62m AOD	-	
	2.3	EA note that if in general property FFLs can be maintained above this level they would be satisfied with the proposals. Suitable justification in the site-specific FRA to be produced by RBG would be provided for any properties that could not meet this level.	-	
	2.4	EA confirm they are happy to review the draft FRA before planning submission. RBG to provide once completed	RBG	TBC
3.0		**Groundwater Abstraction**		
	3.1	Groundwater abstraction is being explored as an option for serving the site's potable water requirements. This is at an early stage of concept development.	-	
	3.2	The EA confirmed that a consumptive licence would need to be applied for, which can take between 3 – 4 months. There are very few examples of this in the Thames Valley region.	-	
	3.3	Licencing would be subject to a pump test and water quality requirements and ongoing maintenance obligations would be subject to agreement with the local EHO.	-	
4.0		**Ground Source Heat Pumps**		
	4.1	It is the applicant's intent to provide a low carbon heating solution to the scheme, which is all electric to exploit future grid decarbonisation. This should utilise an efficient solution. Open loop ground source heating solutions have been deemed most energy and cost efficient. This is not a consumptive system but returns water to the ground once having extracted the heat.	-	
	4.2	The site lies within a Source Protection Zone, albeit the site is in principle acceptable for open loop ground source heat pumps according to the EA / British Geological Survey mapping database.	-	
	4.3	Licencing would be undertaken in two parts, and would be subject to a pump test to determine suitability of the aquifer for supplying water to the site. It was noted that the applicant would attempt to run licencing and planning consent in a twin track approach.	-	
	4.4	In general, the EA noted that non consumptive water abstraction is more likely to be permitted than consumptive abstractions.	-	
5.0		**AOB**		
	5.1	N/A	-	

Appendix E
WBC SFRA Flood Risk Maps

Old Town, Newbury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Legend
West Berkshire Boundary
Main River
Groundwater flooding incidents 2001
Groundwater flooding locations 2001
Critical Drainage Areas
Groundwater Emergence Map
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Metres
This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright.
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JACOBS
CLIENT
West Berkshire District Council
PROJECT
West Berkshire SFRA
TITLE
Critical Drainage Areas
DRG No
FIGURE F1
SCALE
1:125,000 at A3
DATE
22/05/08
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APRV'D
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DIDCOT
NEWBURY
THATCHAM

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Legend

- West Berkshire Boundary
- Groundwater Flood incidents 2001
- Flood Zone 3a (surface water)
- Main River
- Groundwater Emergence Map

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Metres

JACOBS

CLIENT: West Berkshire District Council

PROJECT: West Berkshire SFRA

TITLE: **Critical Drainage Areas**

DRG No: FIGURE F2

SCALE: 1:25,000 at A3

DATE: 22/05/08

DRN	CHK'D	APRV'D
ES	PA	PA

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NEWBURY

THATCHAM

Donnington

Speen

Shaw

Greenham

Ashmore Green

Stone Copse

Hatchgate Fm

Harts Hill Fm

Mount Hill

Honeybottom

Shaw Dene Ho

Fisher's Fm

Thirtover

Craven Fm

High Wood

Brickkiln Wood

Red Fm

Mousefield Fm

Shaw Fm

Donnington Holt

Castle

Bagnor

Woodspeen

Dairy Fm

Deanwood Fm

Speen Ho

Elmore Ho

Clay Hill

Henwick Manor

Lower Henwick Fm

Hospl

Ham Br

Industrial Estate

Sewage Wks

Nature Discovery Centre

Leisure Centre

Racecourse

Lower Fm Gravel Pit

Kennet & Avon Canal

Enborne Ho

West Fields

East Fields

Stroud Green

Skinners Green

Foxgrove

Wash Common Fm

Cumuli Wr Twr

Falkland Memorial

Warren Lodge

Enborne Lodge

Wash Common

St Gabriels (Sch)

Greenham Lodge

Pigeonis Fm

Bowdown Ho

Bury's Bank

Greenham Common

New Greenham Park

Goldfinch

The Round Ho

Thornford Park

Crookham Ho

Crookham Common

Chamberhouse Fm

Crookham Manor

Siege Cross Fm

Hart's Hill

Blacklands Copse

Park Fm

Convent

Fort

Cold Ash Fm

Grange Fm

Woodside

Shelsmore East Common

Country Park

Shelsmore Common

Downe House (Sch)

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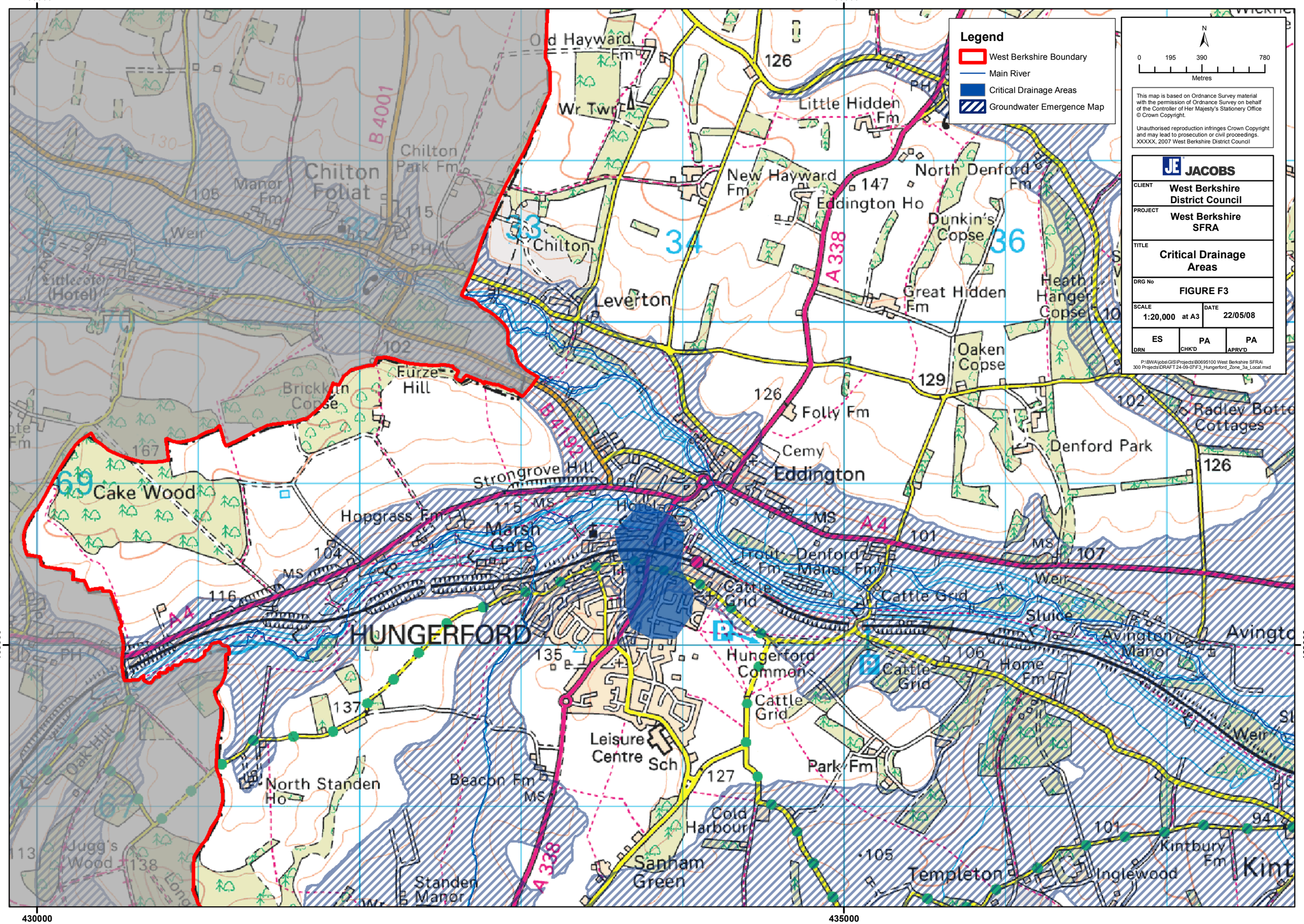
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Legend
West Berkshire Boundary
Main River
Critical Drainage Areas
Groundwater Emergence Map
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Metres
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JACOBS
CLIENT
West Berkshire District Council
PROJECT
West Berkshire SFRA
TITLE
Critical Drainage Areas
DRG No
FIGURE F3
SCALE
1:20,000 at A3
DATE
22/05/08
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ES
CHK'D
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PA
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Old Hayward Fm
Wr Twr
Little Hidden Fm
New Hayward Fm
Eddington Ho
North Denford Fm
Dunkin's Copse
Chilton Park Fm
Manor Fm
Chilton Foliat
Weir
Littlecote (Hotel)
Chilton
Leverton
A 338
Great Hidden Fm
Heath Hanger Copse
Oaken Copse
Folly Fm
Furze Hill
Brickkiln Copse
B 4192
Strongrove Hill
Cemy
Eddington
Radley Botto Cottages
Denford Park
Cake Wood
Hopgrass Fm
Marsh Gate
A4
HUNGERFORD
Trout Fm
Denford Manor Fm
Cattle Grid
Sluice
Avington Manor
Hungerford Common
Home Fm
Leisure Centre
Sch
Park Fm
North Standen Ho
Beacon Fm
Cold Harbour
Sanham Green
Standen Manor
Oak Hill
Dugg's Wood
Templeton
Inglewood
Kintbury Fm
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Legend

- West Berkshire Boundary
- Groundwater flooding incidents 2001
- Critical Drainage Areas
- Groundwater Emergence Map

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JACOBS

CLIENT	West Berkshire District Council
PROJECT	West Berkshire SFRA
TITLE	Critical Drainage Areas
DRG No	FIGURE F4
SCALE	1:20,000 at A3
DATE	22/05/08
DRN	ES
CHK'D	PA
APRV'D	PA

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Hill Fields Fm
Basildon
Wildlife Park
Basildon Park
Park Fm
Park Wood
Coombe Park
Beech Fm
Hill
Collins End
Path Hill
The Baulk
Bozedown Ho
Bozedown Fm
Hardwick Stud Fm
Hardwick Ho
Whitchurch on Thames
Weir
Toll
Pangbourne
Westbury Fm
Home Fm
Home-Fm
Lower Bowden
Cemy
New Town
Upper Bowden Fm
Pangbourne College
Bere Court
Gregory's Hill
Herons Fm
Great Bear
Tidmarsh
Tidmarsh Manor
Maidenhatch
Maidenhatch Fm
Barn Elms Fm
Purley Hall
Purley on Thames
Sulham Wood
Sulham
Sulham Ho
Stoneham Fm
Sch
Sports Centre
Marina
TILEHURST STA
Tilehurst
Little Heath
A 329
A 340
B471
Fort
PH
MS

440000 445000 450000

178000 173000

Legend

- Groundwater flooding incidents 2001
- Flood Zone 3a (surface water)
- West Berkshire Boundary
- Groundwater Emergence Map

N

0 375 750 1,500

Metres

JACOBS

CLIENT	West Berkshire District Council
PROJECT	West Berkshire SFRA
TITLE	Critical Drainage Areas
DRG No	FIGURE F5
SCALE	1:40,000 at A3
DATE	22/05/08
DRN	ES
CHK'D	PA
APRV'D	PA

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Legend

- West Berkshire Boundary
- Critical Drainage Areas
- Groundwater flooding incidents 2001
- Groundwater flooding locations 2001
- Groundwater Emergence Map

N

0 195 390 780

Metres

JACOBS

CLIENT	West Berkshire District Council
PROJECT	West Berkshire SFRA
TITLE	Critical Drainage Areas
DRG No	FIGURE F6
SCALE	1:20,000 at A3
DATE	22/05/08
DRN	ES
CHK'D	PA
APRV'D	PA

P:\BWA\obsGIS\Projects\B0695100 West Berkshire SFRA\300 Projects\F6_Lambourn_Zone_3a_Local.mxd

LAMBOURN DOWNS

Upper Lambourn

Lambourn

Eastbury

Eastbury Down

Eastbury Fields

Eastbury Grange

Coldborough Hill

Warren Down

Bockhampton Down

Garston Down

East Garston

Parkfarm Down

Row Down

Lodge Down

Coppington Down

Farncombe Down

Baydon Hole

Maddle Fm

Croker's Hole

Hangman's Stone

Wether Down

Park Fm

Kingsdown

Newbarn Fm

Mile End

Ewe Hill

Foxbury Fm

College Fm

Gallop

New Barn

Sheepdrove

Drove Fm

Lynch Wood

Equine Hospital

Hill House Stables

North Fm

Fair View

Gallops

Poors Furze

Beckhampton Village

River Lambourn

Farncombe Fm

Windmill Fm

Lodge Fm

Coppington Hill

Boldstart Fm

White Shute

Thornhill Copse

Manor Fm

Kingwood Ho

Willis Fm

Down Fm

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B 4000

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Appendix F
Proposed Site Layout

Old Town, Newbury

NOTES

1. Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.

2.

3. Direct scaling off the drawing is permissible for planning purposes only.

N

The Globe Inn

Escape Route Required As per Covenant

The Sushi Maki

No 21

MARKET PLACE

William Hill

BARTHOLOMEW STREET

The Newbury

Pub Terrace

Access To Platform No Longer Required.

Fire Escape Access Required

void

ST

Patio

Kitchen

Family/ Diner

Patio

Patio

Reception Room

Patio

Patio

Reception Room

Patio

The Catherine Wheel

Flat Roof Elevation To be Exposed.

Exposed Elevation

Exposed Gable.

Stairs are not required if access is granted at Ground Floor.

Lift No Longer Required.

Access required for delivery only.

BUS STOP

CHEAP STREET

Existing Car Park Fire Exit to be Retained

Existing Pedestrian Car Park Access to be re-designed and reinstated.

Pedestrian Access into the Development.

Reception Room/ Bedroom 2

Patio

Reception Room/ Bedroom 3

Patio

New Wall.

Raised Platform.

Existing Stair Core to be Demolished and Reconfigured

Ramp

Pedestrian Ramp

Cinema

Car Park

Car Park Vehicular Exit

MARKET STREET

Existing Vehicular Ramp to be made into A Pedestrian Access and Retained by the Existing Dwellings.

New Development

0 2 4 6 10 20 30

SCALE 1:200

REV	DESCRIPTION	DRN	CHD	DATE
■	PRELIMINARY	☐	INFORMATION	☐ TENDER
☐	CONSTRUCTION	☐	AS BUILT	

SCALE	1:200 @ A0	DATE	FEB 2024
DRAWN	AT/JPG	CHK	JAL
DRAWING NO.	19401/1002	REV	-

TITLE: Old Town, Newbury.

DETAILS: Semi-Basement Floor Plans, Site Layout.

LOCHAILORT

Woods Hardwick

Architecture | Engineering | Planning | Surveying

BEDFORD : HEAD OFFICE
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Bedford MK40 3NH
T: +44 (0) 1234 268862

BIRMINGHAM
Fort Dunlop, Fort Parkway
Birmingham B24 9FE
T: +44 (0) 121 6297784

ONLINE: mail@woodshardwick.com | woodshardwick.com

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REV	DESCRIPTION	DRN	CHD	DATE

▨ PRELIMINARY ☐ INFORMATION ☐ TENDER
☐ CONSTRUCTION ☐ AS BUILT

SCALE 1:200 @ A0 DATE FEB 2024

DRAWN AT/JPG CHK JAL

DRAWING NO. 19401/1003 REV -

TITLE Old Town,
Newbury.

DETAILS Ground Floor Plans,
Site Layout.

LOCHAILORT

Woods Hardwick
Architecture | Engineering | Planning | Surveying

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ONLINE: mail@woodshardwick.com | woodshardwick.com

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United Kingdom
Phone: 02076332880
Website: www.roberbird.com



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