

# Broadwater Road, Welwyn Garden City

## Flood Risk Assessment

Ref: C12885-RP-0 - Rev A

Date: 7th August 2019



THOMASONS

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Revision	Date	Written by	Checked by
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A	07/08/2019	C Gray	P Allen

## **Executive Summary**

This Flood Risk Assessment (FRA) has been produced by Thomasons on behalf of Hightown Housing Association Limited. It supports the demolition of the existing office building and the development of 128 residential flats at 29 Broadwater Road, Welwyn Garden City.

This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) 2018 and the associated Planning Practice Guidance.

The Environment Agency's Flood Map for Planning indicates that the development site is within Flood Zone 1 therefore the risk of flooding from rivers or the sea can be considered to be low. Flood risk from other sources has also been reviewed and indicated to be very low for groundwater; very low for surface water; very low for sewers; very low for reservoirs; and very low for canals.

Changes to flood risk as a result of climate change have been assessed and it is concluded that surface water and sewer flood risk may increase from very low to low.

The surface water drainage on site will be designed and installed to accommodate peak rainfall flows equivalent to the 1% annual probability event, including a 40% increase in rainfall. This provides surety that surface water originating on-site will be managed for the lifetime of the development, inclusive of the highest climate change estimates for peak rainfall.

On the basis the hazard ratings for both natural cavities and mining cavities are considered to be HIGH and sinkholes have been recorded both on site and in close proximity, it is recommended the drainage designer makes reference to CIRIA C574 (2002) "Engineering in Chalk".

Lastly, the invert levels for foul water public sewer manhole 1602 and surface water public sewer 1603 under Broadwater Road are 80.43m and 79.65m above Ordnance Datum (AOD) respectively. The finished floor level (FFL) of the basement level car park is approximately 83.60maOD. Therefore, this report anticipates that gravity drainage connections are achievable from the proposed basement level to the public sewers.

## 1. Introduction

This Flood Risk Assessment (FRA) has been produced by Thomasons on behalf of Hightown Housing Association Limited. It supports the demolition of the existing office building and the development of 128 residential flats at 29 Broadwater Road, Welwyn Garden City.

This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) 2018 and the associated Planning Practice Guidance.

The key site details are presented in Table 1.1, below.

**Table 1.1 – Site Summary**

<b>Site Name</b>	29 Broadwater Road, Welwyn Garden City.
<b>Location</b>	29 Broadwater Road, Welwyn Garden City, AL7 3BQ
<b>Grid Reference</b>	524257, 212648
<b>Site Area (hectares)</b>	0.7
<b>Development Type</b>	Demolition of the existing office building and the development of 128 residential flats
<b>Flood Zone</b>	Flood Zone 1 (Low Risk)
<b>NPPF Vulnerability</b>	More Vulnerable
<b>Surface Water Flood Risk</b>	Low
<b>Lead Local Flood Authority</b>	Hertfordshire County Council
<b>Local Planning Authority</b>	Welwyn Hatfield Borough Council

As Table 1.1 shows, the development site is in Flood Zone 1 and less than 1 hectare in area, however the development may be subject to other sources of flood risk and in an area that has critical drainage problems (as notified to the local planning authority by the Environment Agency). Therefore, NPPF states that a FRA should be carried out.

This report is a FRA and, therefore, deals with environmental issues only in as much as they are impacted by flooding. The report is the property of Thomasons and is produced for the exclusive use of our client, Hightown Housing Association Limited. The contents may not be made use of by any third party without the express written consent of Thomasons. Without such consent Thomasons can accept no responsibility to any third party. By receiving this report and acting on it, the client, or any third party relying on it, accepts that no individual is personally liable in contract, tort, or breach of statutory duty (including negligence).

## 2. Methodology

This is a desk-based study that utilises existing information in the form of mapping and previously undertaken work. Conclusions made about flooding have been made using our expert judgement and knowledge of similar events.

In preparing this report, information has been gathered and referenced from a number of sources. These are as follows:

- i. The Environment Agency's Flood Map for Planning;
- ii. The Risk of Flooding from Surface Water (RoFfSW) Mapping;
- iii. Welwyn Hatfield Borough Council Level 1 and 2 Strategic Flood Risk Assessment 2015;

- iv. Hertfordshire County Council Local Flood Risk Management Strategy Draft 2018;
- v. Hertfordshire County Council Preliminary Flood Risk Assessment 2011 and Addendum 2017;
- vi. Hertfordshire County Council Section 19 Flood Investigation Report Welwyn Garden City 2018;
- vii. Welwyn Hatfield Borough Council Local Plan 2011;
- viii. Existing Site Plan with Topographical Levels by McBains Ltd;
- ix. The NPPF; and,
- x. The Planning Practice Guidance to the NPPF.

### **3. Site Details**

#### **3.1 Site Location & Characteristics**

The development site is in the Peartree Ward of the Welwyn Hatfield Borough Council (WHBC) area. Peartree is a suburban area in the town of Welwyn Garden City, Hertfordshire. See Appendix A for the site location.

The existing five storey commercial building with associated car parking is bounded by Broad Court then a commercial building with associated parking to the north; car parking to the east and south; and Broadwater Road then vacant land to the west. See Appendix B for the Existing Site Plan with Topographical Levels.

There are currently two vehicular accesses to the site; a main entrance/exit from Broadwater Road and an exit-only egress from the staff car park to Broad Court. Post-development there will only be one access onto Broadwater Road. This will be a new junction, which is to be located 20 metres or so north of the existing.

The development site covers 0.7 hectares.

#### **3.2 Geology**

The British Geological Survey (BGS) Geoindex Website indicates the superficial and solid geology underlying the site is sand and gravel (Kesgrave Catchment Subgroup); chalky till together with outwash sands and gravels; silts and clays (Lowestoft Formation); and chalk - the Lewes Nodular Chalk Formation And Seaford Chalk Formation (Undifferentiated).

The nearest available borehole log on the BGS Geoindex website is around 180m west northwest of the site. This borehole is referenced TL21SW211 and encountered Made Ground to 1.00m below ground level (bgl); Clay bound SAND and GRAVEL to 4.70m bgl; Sandy CLAY to 7.00m bgl; Sandy GRAVEL to 13.00 m bgl; and CHALK to 30.00m bgl. The rest groundwater level on completion of the borehole was recorded to be 22.42m bgl.

#### **3.3 Topography**

The Existing Site Plan with Topographical Levels (Appendix B) indicates the site slopes towards the north-east, with drainage gradients built into the car parking area.

The topographical levels also indicate that the development site is slightly elevated relative to Broadwater Road.

The BGS Geoindex website also provides information on the site terrain:

- the site is around 84m Above Ordnance Datum (AOD); and,
- the site slope is approximately 03° (circa 1 in 185 gradient / 0.5% grade).

### 3.4 Surface Water Features

The EA Catchment Data Explorer website indicates the site is in the Lee Upper Catchment<sup>1</sup>. The River Lee is approximately 1.90km southwest of the site and the River Mimram is approximately 2.25km northeast from the site.

### 3.5 Sewer Network

No CCTV drainage survey is available for the development site.

A Thames Water Drainage & Water Property Search, which can be seen in Appendix C, shows both foul and surface water owned and maintained public sewers under Broadwater Road. Both foul water and surface water from the property drain to the public sewers and the invert levels for foul water public sewer manhole 1602 and surface water public sewer 1603 are indicated to be 80.43m and 79.65m AOD respectively.

Welwyn Hatfield Borough Councils 2015 Level 1 and 2 Strategic Flood Risk Assessment reports that 'since 1980, the Sewers for Adoption guidelines have meant that most new surface water sewers have been designed to have capacity for a rainfall event with a 1 in 30-year (3.3% AEP) chance of occurring in any given year, although until recently this did not apply to smaller, private systems. This means that, even where sewers are built to current specification, they are likely to be overwhelmed by larger events of the magnitude often considered when looking at river or surface water flooding (e.g. a 1 in 100 chance of occurring in a given year). Existing sewers can also become overloaded as new development adds to their catchment, or due to incremental increases in roofed and paved surfaces at the individual property scale (urban creep). Sewer flooding is therefore a problem that could occur in many locations across the study area'.

## 4. The Development

It is proposed to demolish the existing office building and develop 128 residential flats at the site.

See Appendix D for the Proposed Development Plans.

## 5. Previous Studies

An Argyll Environmental desktop review of flood risk information from selected sources (Report Reference AEL-0490-FSC-949678 dated 31<sup>st</sup> July 2018) is available for the development site. This report concluded that the 'site is not considered to be at significant risk of flooding'.

Argyll Environmental's desktop report also identified 'Natural and Man Made Mining Cavities' in the immediate vicinity of the site. A subsequent Peter Brett Associates (PBA) cavities databases search dated 11<sup>th</sup> December 2018 concluded that 'the hazard ratings for both natural cavities and mining cavities are considered to be HIGH and sinkholes have been recorded on site and in close proximity'. PBA recommended that foundation and drainage designers make reference to CIRIA C574 (2002) "Engineering in Chalk".

## 6. Flood Risk Planning Policy

### 6.1 The Environment Agency Flood Map for Planning

The Environment Agency's Flood Map for Planning gives an indicative prediction of areas at risk of fluvial and tidal flooding. The mapping is an amalgamation of modelled flood levels and historical flood event outlines.

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<sup>1</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB106038033270>

The Flood Map is split into 'Flood Zones', which demarcate the extent of flooding from rivers or the sea for different return periods. The Flood Map for Planning shows the extent of the natural floodplain if there were no defences or other man-made structures. They do not provide a definitive picture of where flooding would occur; rather, they provide an indicative prediction of areas at risk.

Table 6.1, below, lists the flood zone categories and explains the flood risk probabilities they represent.

**Table 6.1 – Flood Zone Categories**

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

## 6.2 The National Planning Policy Framework

The NPPF sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. The Planning Practice Guidance to the NPPF provides further information on the policies set out in the NPPF. It encourages development to be located in areas of lower flood risk wherever possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

Within each Flood Zone, a key factor in determining planning applications for development is the flood risk vulnerability of a development. Table 2 of the Planning Practice Guidance to the NPPF categorises different development types according to their vulnerability to flooding. These categories are:

- Essential infrastructure;
- Highly vulnerable development;
- More vulnerable development;
- Less vulnerable development, and;
- Water-compatible development.

Within the different Flood Zones each of the above development categories are considered appropriate or not permissible. The Planning Practice Guidance to the NPPF lists these as:

- **Flood Zone 1:**

All the development categories listed above are appropriate

- **Flood Zone 2:**

Water-compatible, less vulnerable development, more vulnerable development and essential infrastructure is appropriate in this zone.

- **Flood Zone 3a:**

Water-compatible and less vulnerable development is appropriate in this zone. Highly vulnerable development should not be permitted in this zone.

- **Flood Zone 3b:**

Only water-compatible development and essential infrastructure that has to be there should be permitted in this zone.

The above information sets out the basis by which developments must be assessed in terms of flood risk. In Section 8, below, the vulnerability of the proposed development at the site will be reviewed against the Flood Zone in which it is located. This will inform the appropriateness of the development as per the advice within the Planning Practice Guidance of the NPPF.

### 6.3 Preliminary Flood Risk Assessment

Preliminary Flood Risk Assessments (PFRA's) provide a high-level overview of flood risk and are prepared by the Lead Local Flood Authorities (LLFA), which in this case is Hertfordshire County Council (HCC). PFRA's consider flooding from surface water runoff, groundwater and ordinary watercourses and reference historical flooding that has occurred in the local area as well as the potential for future flooding. The 2011 PFRA and 2017 Addendum have been reviewed and will be referenced in this report, where applicable.

### 6.4 Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future. WHBC produced a Level 1 and 2 SFRA in 2015 to facilitate the application of the Sequential and Exception Tests to screen allocated development sites. The development site is not referenced within the SFRA, however, if necessary, this report will employ the same risk-based approach to determine the suitability of the site for development.

### 6.5 Local Flood Risk Management Strategy

A Local Flood Risk Management Strategy (LFRMS) is prepared by the LLFA to ensure that knowledge of local flood risk issues is communicated effectively so that they can be better managed within the Borough. The LFRMS also aims to provide a more comprehensive and holistic approach to flood risk management for communities, businesses and infrastructure by aligning itself with the Council's Local Plans such as the SFRAs, Development Management Policies and the Surface Water Management Plan.

The DRAFT 2018 LFRMS has been reviewed and will be referenced within this report where applicable.



## 6.6 Surface Water Management Plans

A Surface Water Management Plan (SWMP) is a study to understand the risk from local flood sources and outlines a long-term action plan to manage these risks. Some of these flood sources include:

- Surface water drains
- Groundwater
- Small watercourses and ditches

With reference to the Section 4.5.1 of the Draft 2018 LFRMS, an assessment of the potential to manage flood risk through Surface Water Management Plans in Welwyn-Hatfield is underway and is programmed to be completed in 2019.

## 6.7 Section 19 Flood Investigation Report Welwyn Garden City

HCC undertook an investigation and provided recommendations for reducing the risk of surface water flooding that occurred in Welwyn Garden City in 2016.

The Flood Investigation Report has been reviewed and will be referenced within this report where applicable.

## 6.8 Local Plan

A Local Plan sets out local planning policies and identifies how land is used, determining what will be built where. Adopted Local Plans provide the framework for development across England.

The WHBC's Local Plan and Interactive Policies Map have been reviewed and will be referenced within this report where applicable.

## 7. Historical Flooding

Thames Water maintains a register of flooding from surcharging of the foul and combined sewer network. The data is grouped per postcode area (to the first three digits) so it is difficult to establish specific areas at risk. Instead, the DG5 register provides an indicative picture of historical sewer flooding over a wide area.

Table 4.4 of the 2015 Level 1 and 2 SFRA indicates that there were 51 sewer flooding incidents reported to Thames Water in the site's postcode area between 10 and 20 years ago and 0 reported sewer flooding incidents within the last 10 years.

The Thames Water Drainage & Water Property Search, which can be seen in Appendix C, states the 'property is not recorded as being at risk of internal flooding due to overloaded public sewers'.

The nearest flooding location relative to the site during the 2016 surface water flooding event (Section 6.7) was Hyde Brook West, approximately 800m to the southeast.

The salient findings of this investigation with respect to the development site are considered to be:

- the rainfall event was equivalent to a medium risk event - between 1 in 100 (1%) and 1 in 30 (3.3%) chance of flooding each year; and,
- there had been significant rainfall preceding the event.

Map 1b: Map 2 of 3 of the Draft 2018 LFRMS indicates that there are no HCC reported flooding incidents within the immediate vicinity of the proposed development site.

## 7.1 Summary

Although there are numerous incidences of historic flooding across Welwyn Garden City, none have been recorded within the last 10 years in the immediate vicinity of the proposed development site. This time period covers the surface water flooding that occurred in Welwyn Garden City in 2016.

## 8. Flood Risk Assessment

Flooding can arise from a variety or combination of sources. These may be natural or artificial and may be affected by climate change. These are discussed, below, in detail and summarised in Table 8.1, which is at the end of this chapter.

### 8.1 Fluvial Flood Risk

The Environment Agency's Flood Map for Planning in Appendix E indicates that the proposed development site is within Flood Zone 1. The risk of flooding from rivers or the sea can be considered to be low.

Buildings used for dwelling houses – unless basement dwellings – are listed in Table 2 of the Planning Practice Guidance to the NPPF as being 'more vulnerable' to flooding. On the basis only bike parking, car parking and a few comparatively small utility rooms are proposed at the basement level, this FRA will consider the development to be 'more vulnerable'.

Table 3 of the Planning Practice Guidance to the NPPF states that 'more vulnerable' development is appropriate in Flood Zone 1. Consequently, the proposed development can be considered to be appropriate in this location.

### 8.2 Tidal Flood Risk

The site is not in an area at risk of tidal flooding.

### 8.3 Groundwater Flood Risk

The risk of groundwater flooding is dependent on local geological and hydrogeological conditions at any given time. Groundwater levels rise during wet winter months and fall again in the summer when rainfall is low and extractions are higher. In very wet winters, rising groundwater levels can reactivate flow in ephemeral streams that only flow for part of the year or even lead to the flooding of normally dry land.

Defra's Magic Map<sup>2</sup> shows the superficial deposits and bedrock under the site are designated Secondary A and Principal Aquifers respectively. It is also noted, that the development site is located in Source Protection Zone 3.

The EA Areas Susceptible to Groundwater Flooding (AStGWF) map presented in Appendix G of the WHBC Level 1 and 2 SFRA in 2015 (Appendix F in this report) indicates that the development site is not located in an area susceptible to groundwater flooding.

The AStGWF map should be used in combination with other information, for example local data or historic data. As discussed in Sections 3 and 7, the rest groundwater level on completion of borehole TL21SW211 around 180m west northwest of the site was 22.42m bgl and there are no HCC recorded incidences of historic flooding within the immediate vicinity of the development site.

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<sup>2</sup> <http://magic.defra.gov.uk/MagicMap.aspx>

## 8.4 Surface Water (Pluvial) Flood Risk

Pluvial flooding results from rainfall-generated overland flow, where rainwater has not yet reached a watercourse or sewer and where the local drainage systems become overwhelmed. Pluvial flooding often occurs during short, very intense storms, but can also occur during longer periods of rainfall when the ground is already saturated, or where land has low permeability due to development. Although pluvial flood events are usually short-term, they can be devastating with fast flows and deep waters occurring quickly.

In these conditions surface water can build up where the topography is flat. Where it gathers it will travel down prevailing gradients. Pluvial flooding then occurs at locations where significant surface water flow paths converge, at localised low points and/or due to overland obstructions. In urban areas pluvial flooding often occurs where the built environment channels overland flow routes (down roads that are bounded by kerbs, for example) or where there are obstacles to natural the overland flow routes. Boundary walls and buildings are often the main culprits and, hence, the likelihood of pluvial flooding to impact property and gardens.

Pluvial flooding is exacerbated in many cases by the mistreatment or failure of the below ground infrastructure (including partial or full blockages of gullies and/or within the combined sewers and the accumulation of fats, oils and greases within the sewer networks).

The EA Risk of Flooding from Surface Water (RoFfSW) maps attempt to model the areas where pluvial flooding is likely to occur. The RoFfSW map is a national scale modelled output. It shows the flooding that could take place from the 'surface runoff' generated by rainwater (including snow and other precipitation) which:

- a. is on the surface of the ground (whether or not it is moving), and
- b. has not yet entered a watercourse, drainage system or public sewer.

The RoFfSW map predominantly follows topographical flow paths of existing watercourses, or dry valleys with some isolated ponding located in low lying areas.

The EA RoFfSW map presented in Appendix F of the WHBC Level 1 and 2 SFRA in 2015 (Appendix G in this report) shows a very low – and locally low – pluvial flood risk within the proposed development site.

There are areas of low, medium and high pluvial flood risk along Broadwater Road to the west of the site; however these areas do not transgress beyond the kerb line. This reinforces the above discussion about the built environment and kerbs strongly influencing the course and extent of pluvial flooding. Where low, medium and high pluvial flood risk is indicated, the estimated surface water depth is both 300 to 900mm and below 300mm and the flood velocity is both less than 0.25 m/s and over 0.25 m/s<sup>3</sup>.

There are areas of low pluvial flood risk along Broad Court to the north of the site; however these areas also do not transgress beyond the kerb line. This reinforces the above discussion about the built environment and kerbs strongly influencing the course and extent of pluvial flooding. Where low pluvial flood risk is indicated, the estimated surface water depth is below 300mm and the flood velocity is less than 0.25 m/s<sup>4</sup>.

Lastly, there is an area of medium pluvial flood risk in the vacant car park immediately to the south of the development site. The medium pluvial flood risk area does not transgress beyond the site

<sup>3</sup> <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

<sup>4</sup> <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

boundary. Where a medium pluvial flood risk is indicated, the estimated surface water depth is below 300mm and the flood velocity is predominantly less than 0.25 m/s<sup>5</sup>.

It must be remembered that pluvial flood mapping requires a number of assumptions to be made. The models have good terrain information, but they cannot represent the every detail of the urban landscape that has the ability to locally affect the distribution and depth of flooding. Similarly, surface water drainage capacity, which has perhaps the greatest influence on pluvial flooding, remains the most uncertain factor and a number of assumptions have to be made that may or may not represent the local situation. Consequently, the pluvial flood risk maps must be viewed as indicative.

In summary, the pluvial flood risk indicates that the proposed development site is in an area of very low risk.

#### 8.5 Flood Risk from Canals

There are no purpose-built canals or navigable waterways in the vicinity of the site.

#### 8.6 Flood Risk from Reservoirs and Large Water Bodies

Flooding can occur from reservoirs or large water bodies if they are impounded above the surrounding ground levels, or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies can overtop or breach their impounding structures leading to rapid inundation of the downstream floodplain.

The development site is not located in an area that could be flooded if a large reservoir were to fail and release the water it holds<sup>6</sup>.

On this basis, the risk of flooding from a reservoir breach is very low.

#### 8.7 Flood Risk from Sewers

Although there are numerous incidences of historic flooding across Welwyn Garden City, none have been recorded within the last 10 years in the immediate vicinity of the proposed development site. This time period covers the surface water flooding that occurred in Welwyn Garden City in 2016.

#### 8.8 Climate Change

The NPPF and the supporting Planning Practice Guidance document sets out how flood risk should be considered over the lifetime of a development. This requires an increase in flood risk due to climate change to be taken into account. Both peak river flows and rainfall intensity should be assessed.

##### Peak River Flows

A range of climate change allowances have been provided by the NPPF for peak river flow increases - a 'central' allowance, a 'higher central' allowance and an 'upper end' allowance. The flood zone and risk vulnerability classification of the development decide which allowance to consider.

The NPPF states that for 'more vulnerable' developments in Flood Zone 1 the 'central' climate change allowance should be used. This estimates an increase in peak river flows of 25% when designing for the '2080s' (2070 to 2115).

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<sup>5</sup> <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

<sup>6</sup> <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

Without site-specific modelling, there can be no definitive conclusion regarding whether an increase in peak river flows of 25% will pose a risk to the development site. However, given that the site is already well outside of any Fluvial Flood Risk Zones, it is highly unlikely that an increase in peak river flows will result in the site being within a Flood Zone that would render the development inappropriate.

### Peak Rainfall Intensity

With climate change it is becoming more common to see rainfall events of higher intensity, particularly in the south east of England. Increased rainfall intensity affects river levels and drainage systems, with the result being an increase in surface water flooding and sewerage surcharge.

When designing for the '2080s' (2070 to 2115) the NPPF states that peak rainfall intensity may increase by between 20% and 40%. Therefore, an increased risk of surface water flooding is anticipated. Surface water flood risk at the development site is currently very low and there are no recorded historical incidences of surface water flooding on site. It is reasonable to assume that, with an increase in peak rainfall intensity, the risk of surface water flooding in the immediate vicinity of the proposed development site may increase; however, the increased future risk is still likely to be low.

It should also be acknowledged that an increase in peak rainfall and events of greater intensity are likely to increase the risk of sewerage surcharge in the Borough, however, the increased future risk in sewer flooding in the immediate vicinity of the proposed development site is still likely to be low.

The surface water drainage on site will be designed and installed to accommodate peak rainfall flows equivalent to the 1% annual probability event, including a 40% increase in rainfall. This provides surety that surface water originating on-site will be managed for the lifetime of the development, inclusive of the highest climate change estimates for peak rainfall.

## 8.9 Residual Flood Risk

It is important to recognise that flood risk can never be fully mitigated and there will always be a residual risk of flooding.

The residual risk is associated with a number of potential risk factors, including (but not limited to):

- A flood event that exceeds that for which the local flood defences or local drainage system has been designed to withstand.
- A residual danger posed to property and life as a result of flood defence failure through overtopping or structural collapse.
- General uncertainties inherent in the prediction of flooding.

Modelling of flood events is not an exact science. Therefore, there is an inherent uncertainty in the prediction of flood levels and extents used in the assessment of flood risk. The EA Flood Map, surface water mapping and groundwater flood mapping are largely based upon detailed modelling within the area. Whilst they provide a good depiction of flood risk for specific modelled conditions, all detailed modelling requires the making of core assumptions and these might not occur in the open and dynamic environment of a flood event. Also, the EA Flood Map and other flood modelling are updated regularly. Interested parties are recommended to keep abreast of this so that a significant change or increase in flood risk can be determined.

## 8.10 Summary of Flood Risk

**Table 8.1 – Summary of Flood Risk on Site**

Flood Source	Risk Level				Comment
	High	Medium	Low	Very Low	
Fluvial			X		Fluvial Flood Zone 1
Tidal			X		Tidal Flood Zone 1
Groundwater				X	The development site is not located in an area susceptible to groundwater flooding
Surface Water				X	Surface water flood mapping shows that the site is currently at very low risk of surface water flooding
Canals				X	There are no canals or navigable waterways in the vicinity of the site
Reservoirs				X	The development site is not located in an area that could be flooded if a large reservoir were to fail and release the water it holds
Sewers				X	No incidences of historic flooding have been recorded within the immediate vicinity of the proposed development site
Increase due to Climate Change			X		Increased peak rainfall intensities may increase surface water flood risk and sewerage surcharge. Risk to the site low.

**9. Conclusion**

This Flood Risk Assessment (FRA) has been produced by Thomasons on behalf of Hightown Housing Association Limited. It supports the demolition of the existing office building and the development of 128 residential flats at 29 Broadwater Road, Welwyn Garden City.

This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) 2018 and the associated Planning Practice Guidance.

The Environment Agency's Flood Map for Planning indicates that the development site is within Flood Zone 1 therefore the risk of flooding from rivers or the sea can be considered to be low. Flood risk from other sources has also been reviewed and indicated to be very low for groundwater; very low for surface water; very low for sewers; very low for reservoirs; and very low for canals.

Changes to flood risk as a result of climate change have been assessed and it is concluded that surface water and sewer flood risk may increase from very low to low.

The surface water drainage on site will be designed and installed to accommodate peak rainfall flows equivalent to the 1% annual probability event, including a 40% increase in rainfall. This

provides surety that surface water originating on-site will be managed for the lifetime of the development, inclusive of the highest climate change estimates for peak rainfall.

On the basis the hazard ratings for both natural cavities and mining cavities are considered to be HIGH and sinkholes have been recorded both on site and in close proximity, it is recommended the drainage designer makes reference to CIRIA C574 (2002) "Engineering in Chalk".

Lastly, the invert levels for foul water public sewer manhole 1602 and surface water public sewer 1603 under Broadwater Road are 80.43m and 79.65m above Ordnance Datum (AOD) respectively. The finished floor level (FFL) of the basement level car park is approximately 83.60maOD. Therefore, this report anticipates that gravity drainage connections are achievable from the proposed basement level to the public sewers.

**Appendix A**  
Site Location Map

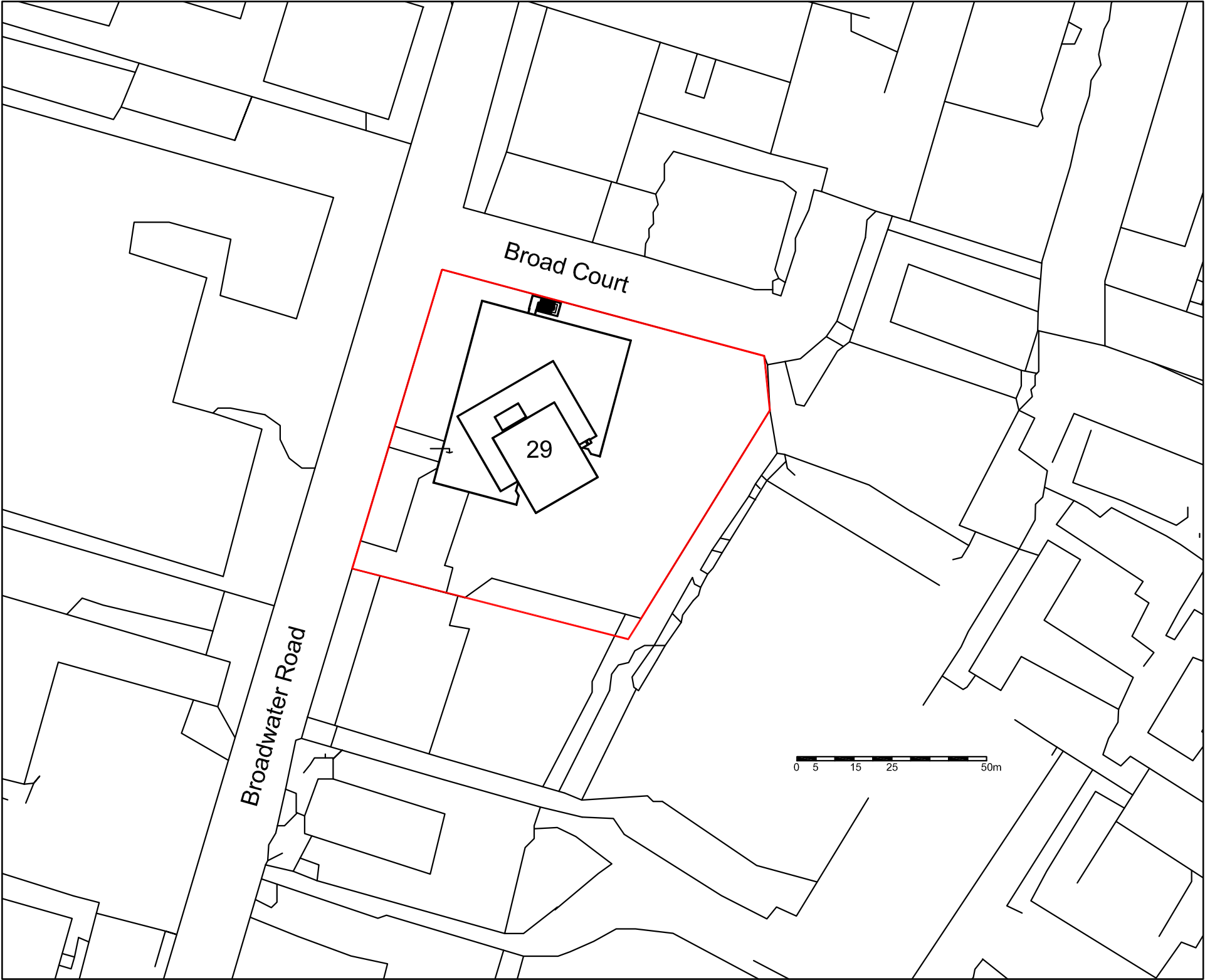


Notes:  
The contractor must verify all dimensions on site before commencing any work on shop drawings, do not scale from this drawing  
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McBains Ltd makes no express or implied warranties with respect to the character, function, or capabilities of the data (inclusive of 3rd party data incorporated within), or the suitability of the data for any particular purpose beyond those originally intended by McBains Ltd. Please refer to our standard terms and conditions for further details.




 SITE AREA 6984msq



P2	Dashed boundary converted to solid line	23-01-19
P1	First Issue	10-01-19

Revision	Amendment	Date
MF	EC	POR
Drawn by	Reviewed by	Approved by
60193	OCT 18	1:1250 @ A3
MCB Number	Date created	Scale @ A3



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Client  
HIGHTOWN HOUSING ASSOCIATION

Project  
29 BROADWATER ROAD

Drawing Title  
OS PLAN - SITE LOCATION

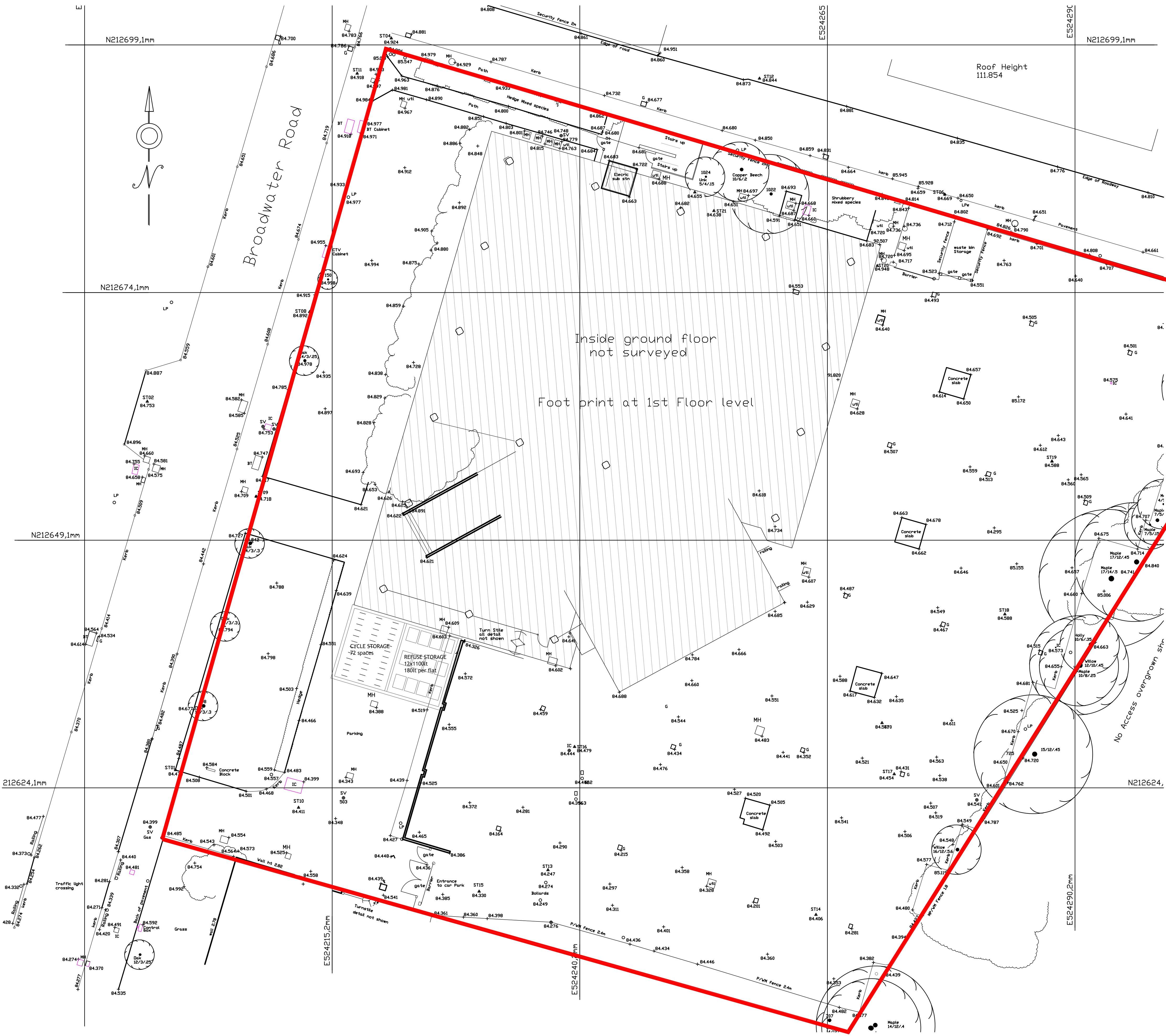
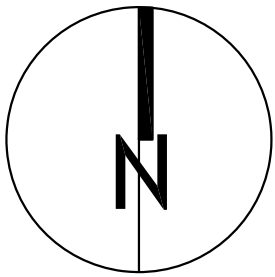
# ARCHITECTURE

Drawing / Document Reference		Status						
BRW01	· MCB · ZZ · 00 · DR · A · 0100	S0 · P2						
Project Idm	Originator	Zone	Level	Type	Discipline	Number	Suitability	Revision

**Appendix B**  
Existing Site Plan with Topographical Levels

Notes:  
The contractor must verify all dimensions on site before commencing any work on shop drawings, **McBains Ltd copyright**

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McBains Ltd makes no express or implied warranties with respect to the character, function, or capabilities of the data (inclusive of 3rd party data incorporated within), or the suitability of the data for any particular purpose beyond those originally intended by McBains Ltd. Please refer to our standard terms and conditions for further details.



P2 Dashed boundary converted to solid line 23-01-19  
P1 First Issue Nov -18

Revision	Amendment	Date
PV	MF	MF
Drawn by	Reviewed by	Approved by
60193	NOV 18	1:200@ A1
MCB Number	Date created	Scale @ A1

**McBains**

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Client  
HIGHTOWN HA

Project  
29 BROADWATER ROAD  
WELWYN GARDEN CITY

Drawing Title  
SITE PLAN - REFURBISHMENT  
REFUSE & CYCLE STORAGE PROVISION

**ARCHITECTURE**

Drawing / Document Reference							Status	
BRW01 - MCB - XX - 00 - DR - A - 0101							S0 - P2	
Project Iden	Originator	Zone	Level	Type	Discipline	Number	Suitability	Revision

**Appendix C**  
Proposed Development Plans

SearchFlow Limited  
42  
Kings Hill Avenue  
Kings Hill  
West Malling  
ME19 4AJKent

Search address supplied	29, Broadwater Road, Garden City, Welwyn Garden City, AL7 3BQ
Your reference	CLB/3801931
Our reference	CDWS/CDWS Standard/2018_3846359
Received date	31 July 2018
Search date	3 August 2018

### Keeping you up-to-date

Identifying the status associated with drainage and water is a vital part of commercial property conveyancing. To get the most comprehensive view surrounding drainage and water, it is important to obtain an official search.

A CommercialDW Drainage & Water Enquiry will:

- Confirm to the buyer that a property is connected to the mains supply and mains drainage
- Bring to light any potential risk of internal sewer flooding
- Provide information about trade effluent consent licenses and invert and cover levels
- Find out if wayleaves and easements affect the property/site, and
- Offer £2 million, £5 million, or £10 million of indemnity against any potential risks.



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



[searches@thameswater.co.uk](mailto:searches@thameswater.co.uk)  
[www.thameswater-propertysearches.co.uk](http://www.thameswater-propertysearches.co.uk)



0845 070 9148



## Question

## Summary Answer

### Maps, Wayleaves, Easements, Manhole Cover and Invert levels

1.1	Where relevant, please include a copy of an extract from the public sewer map.	Map Provided
1.2	Where relevant, please include a copy of an extract from the map of waterworks.	Map Provided
1.3	Is there a wayleave/easement agreement giving Thames Water the right to lay or maintain assets or right of access to pass through private land in order to reach the Company's assets?	No
1.4	On the copy extract from the public sewer map, please show manhole cover, depth and invert levels where the information is available.	See Details

### Drainage

2.1	Does foul water from the property drain to a public sewer?	Connected
2.2	Does surface water from the property drain to a public sewer?	Connected
2.3	Is a surface water drainage charge payable?	See Details
2.4	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	No
2.4.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?	No
2.5	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	Yes
2.5.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the 50metres of any buildings within the property?	No
2.6	Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
2.7	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	No
2.8	Is the building which is or forms part of the property, at risk of internal flooding due to overloaded public sewers?	Not At Risk
2.9	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	2.575 Kilometres

### Water

3.1	Is the property connected to mains water supply?	Connected
3.2	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	No
3.3	Is any water main or service pipe serving or which is proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
3.4	Is the property at risk of receiving low water pressure or flow?	No
3.5	What is the classification of the water supply for the property?	Very Hard
3.6	Please include details of the location of any water meter serving the property.	See Details

### Question

### Summary Answer

#### Charging

4.1.1	Who are the sewerage undertakers for the area?	Thames Water
4.1.2	Who are the water undertakers for the area?	Affinity Water
4.2	Who bills the property for sewerage services?	See Details
4.3	Who bills the property for water services?	See Details
4.4	Is there a meter installed at this property?	Yes
4.5	Are there any trade effluent consents relating to this site/property for disposal of chemically enhanced waste?	No

**Search address supplied:** 29, Broadwater Road, Garden City, Welwyn Garden City, AL7 3BQ

Any new owner or occupier will need to contact Thames Water on 0800 316 9800 or log onto our website [www.thameswater.co.uk](http://www.thameswater.co.uk) and complete our online form to change the water and drainage services bills to their name.

The following records were searched in compiling this report: - the map of public sewers, the map of waterworks, water and sewer billing records, adoption of public sewer records, building over public sewer records, the register of properties subject to internal foul flooding, the register of properties subject to poor water pressure and the drinking water register.

Thames Water Utilities Ltd (TWUL) holds all of these.

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

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

Please refer to the attached Terms & Conditions. Customers and clients are asked to note these terms, which govern the basis on which this Commercial Drainage and Water search is supplied.



**Maps, Wayleaves, Easements, Manhole Cover and Invert levels**

**1.1 Where relevant, please include a copy of an extract from the public sewer map.**

A copy of an extract of the public sewer map is included, showing the public sewers, disposal mains and lateral drains in the vicinity of the property.

**1.2 Where relevant, please include a copy of an extract from the map of waterworks.**

A copy of an extract from the map of waterworks is included in which the location of the property is identified.

**1.3 Wayleaves & Easements**

**Is there a wayleave/easement agreement giving Thames Water the right to lay or maintain assets or right of access to pass through private land in order to reach the Company's assets?**

No.

**1.4 Manhole**

**On the copy extract from the public sewer map, please show manhole cover, depth and invert levels where the information is available.**

Details of any manhole cover and invert levels applicable to this site are enclosed.

**Drainage**

**2.1 Does foul water from the property drain to a public sewer?**

Records indicate that foul water from the property drains to a public sewer.

**2.2 Does surface water from the property drain to a public sewer?**

Records indicate that surface water from the property drains to a public sewer.

**2.3 Is a surface water drainage charge payable?**

Records indicate that a surface water charge is applicable at this property.

**2.4 Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundary of the property?**

The public sewer map indicates that there are no public sewers, disposal mains or lateral drains within the boundaries of the property. However, from the 1st October 2011 there may be lateral drains and/or public sewers which are not recorded on the public sewer map but which may prevent or restrict development of the property.

**2.4.1 Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?**

The public sewer map included indicates that there is no public pumping station within the boundaries of the property.

**2.5 Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?**

The public sewer map included indicates that there is a public sewer within 30.48 metres (100 feet) of a building within the property.

**2.5.1 Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?**

The public sewer map included indicates that there is no public pumping station within 50 metres of any buildings within the property.

**2.6 Are any sewers or lateral drains serving, or which are proposed to serve, the property the subject of an existing adoption agreement or an application for such an agreement?**

Records confirm that Foul sewers serving the development, of which the property forms part are not the subject of an existing adoption agreement or an application for such an agreement.

The Surface Water sewer(s) and/or Surface Water lateral drain(s) are not the subject of an adoption agreement.

**2.7 Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?**

There are no records in relation to any approval or consultation about plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.

**2.8 Is the building which is or forms part of the property, at risk of internal flooding due to overloaded public sewers?**

The property is not recorded as being at risk of internal flooding due to overloaded public sewers.

From the 1st October 2011 most private sewers, disposal mains and lateral drains were transferred into public ownership. It is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information it is recommended that enquiries are made of the vendor.

**2.9 Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.**

The nearest sewage treatment works is Mill Green STW which is 2.575 kilometres to the south of the property.

**Water**

**3.1 Is the property connected to mains water supply?**

Records indicate that the property is connected to mains water supply.

**3.2 Are there any water mains, resource mains or discharge pipes within the boundary of the property?**

The map of waterworks does not indicate any water mains, resource mains or discharge pipes within the boundaries of the property.

**3.3 Is any water main or service pipe serving, or which is proposed to serve, the property the subject of an existing adoption agreement or an application for such an agreement?**

Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.

**3.4 Is the property at risk of receiving low water pressure or flow?**

Records confirm that the property is not recorded on a register kept by the water undertaker as being at risk of receiving low water pressure or flow.

**3.5 What is the classification of the water supply for the property?**

The water supplied to the property has an average water hardness of 130mg/l calcium which is defined as Very Hard by Affinity Water.

**3.6 Please include details of the location of any water meter serving the property.**

Records indicate that the property is served by a water meter, which is not located within the property.

## Charging

### 4.1.1 – Who is responsible for providing the sewerage services for the property?

Thames Water Utilities Limited, Clearwater Court, Reading, RG1 8DB is the sewerage undertaker for the area.

### 4.1.2 – Who is responsible for providing the water services for the property?

Affinity Water Ltd, Tamblin Way, Hatfield, AL10 9EZ, is the water undertaker for the area.

### 4.2 Who bills the property for sewerage services?

If you wish to know who bills the sewerage services for this property then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit [www.open-water.org.uk](http://www.open-water.org.uk)

### 4.3 Who bills the property for water services?

If you wish to know who bills the water services for this property then you will need to contact the current owner. For a list of all potential retailers of water services for the property please visit [www.open-water.org.uk](http://www.open-water.org.uk)

### 4.4 Is there a meter installed at this property?

Records indicate that there is a meter installed at this property.

### 4.5 Trade Effluent Consent

**Are there any trade effluent consents relating to this site/property for disposal of chemically enhanced waste?**

No.

#### Payment for this Search

**The charge will be added to the NLIS Account. This search was ordered through National Land Information Services, Russell Square House, 10-12 Russell Square, London WC1B 5LF.**

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information.

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 no survey information is available.

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2501	83.71	80.25
1501	84.44	81.67
1504	84.59	80.58
1503	84.48	80.16
1505	84.48	79.99
1502	84.29	79.96
1604	84.2	83.27
1601	84.47	81.13
1602	84.57	80.43
1603	84.5	79.65
271B	n/a	n/a
271A	n/a	n/a
2701	84.97	80.61
271C	n/a	n/a


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






# Sewer Key - Commercial Drainage and Water Enquiry

## 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

 Gully

 Culverted Watercourse

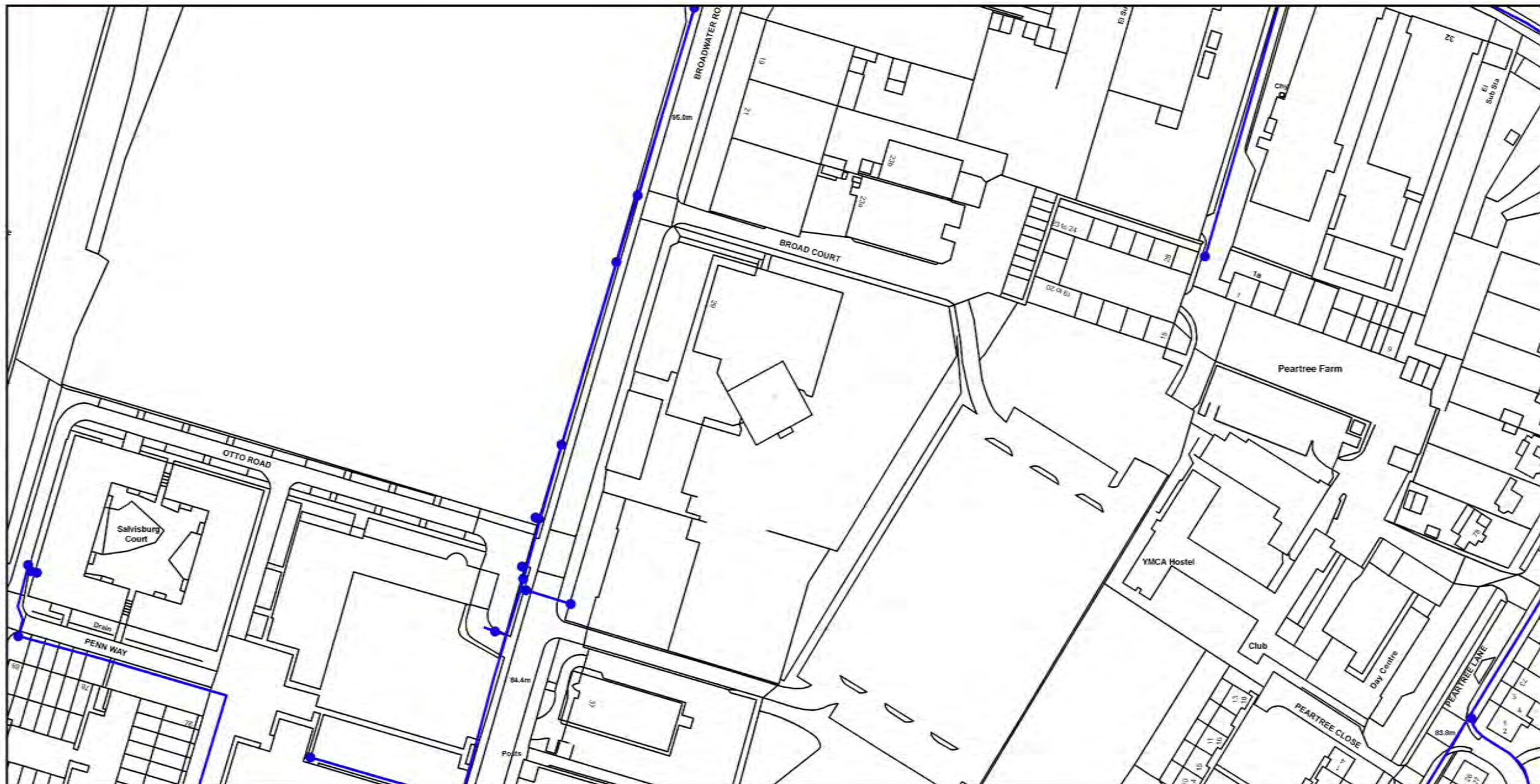
 Proposed

 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 millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0118 925 1504.



Copyright Affinity Water Ltd. Based upon the Ordnance Survey Map by Affinity Water by permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown Copyright and database rights 2017 Ordnance Survey 100022432

It shows water mains and associated apparatus but should not be relied upon as evidence of ownership or evidence of responsibility for maintenance. Privately owned service pipes (which may serve one or more properties) are unlikely to be shown.

The position of Company apparatus shown on this plan is provided for guidance only and the Company accepts no responsibility in the event of inaccuracy

For further information about the contents of this plan, please contact Affinity Water on 0845 7823333 or at the address below.

Affinity Water, Tamblin Way, Hatfield, Hertfordshire, AL10 9EZ. [www.affinitywater.co.uk/central](http://www.affinitywater.co.uk/central)  
(c) Affinity Water Limited

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This map is centred upon Ordnance Survey grid reference

524250,212648

- |                      |                                 |
|----------------------|---------------------------------|
| Water Main           | Hydrants, Valves, etc           |
| Abandoned Water Main | Borehole, Pumping Facility, etc |



1:1166

02/08/2018



For your guidance:

- Thames Water Property Searches Complaints Procedure:
  - Thames Water Property Searches offers a robust complaints procedure. Complaints can be made by telephone, in writing, by email ([searches@thameswater.co.uk](mailto:searches@thameswater.co.uk)) or through our website ([www.thameswater-propertysearches.co.uk](http://www.thameswater-propertysearches.co.uk))

As a minimum standard Thames Water Property Searches will:

- endeavour to resolve any contact or complaint at the time of receipt. If this isn't possible, we will advise of timescales;
- investigate and research the matter in detail to identify the issue raised (in some cases third party consultation will be required);
- provide a response to the customer within 10 working days of receipt of the complaint;
- provide compensation, if no response or acknowledgment that we are investigating the case is given within 10 working days of receipt of the complaint;
- keep you informed of the progress and, depending on the scale of investigation required, update with new timescales as necessary;
- provide an amended search, free of charge, if required;
- provide a refund if we find your complaint to be justified; take the necessary action within our power to put things right.

If you want us to liaise with a third party on your behalf, just let us know.

If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager, for resolution, who will respond again within 5 working days.

If you remain dissatisfied with our final response you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). Please refer to the final page of the search for further details.

## Question 1.1

For your guidance:

- The Water Industry Act 1991 defines Public Sewers as those which Thames Water have responsibility for. Other assets and rivers, watercourses, ponds, culverts or highway drains may be shown for information purposes only.
- 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.
- Assets other than public sewers may be shown on the copy extract, for information.

## Question 1.2

For your guidance:

- The “water mains” in this context are those, which are vested in and maintainable by the water company under statute.
- Assets other than public water mains may be shown on the plan, for information only.
- Water companies are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
- 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.

## Question 2.1

For your guidance:

- Water companies are not responsible for any private drains that connect the property to the public sewerage system and do not hold details of these. The property owner will normally have sole responsibility for private drains serving the property. These may pass through land outside the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
- If foul water does not drain to the public sewerage system, the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.
- An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

## Question 2.2

For your guidance:

- Sewerage Undertakers are not responsible for any private drains that connect the property to the public sewerage system, and do not hold details of these.
- The property owner will normally have sole responsibility for private drains serving the property. These private drains may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
- In some cases, 'Sewerage Undertakers' records do not distinguish between foul and surface water connections to the public sewerage system.
- At the time of privatisation in 1989, Sewerage Undertakers were sold with poorly-kept records of sewerage infrastructure. The records did not always show which properties were connected for surface water drainage purposes. Accordingly, billing records have been used to provide an answer for this element of the drainage and water search.
- Due to the potential inadequacy of 'Sewerage Undertakers' infrastructure records with respect to surface water drainage, it is the customer's responsibility to inform the Sewerage Undertaker that they do not receive the surface water drainage service. If on inspection, the buyer finds that surface water from the property does not drain to a public sewer, then the property may be eligible for a rebate of the surface water drainage charge. If you wish to know who bills the sewerage services for this property then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit [www.open-water.org.uk](http://www.open-water.org.uk).
- If surface water from the property does not drain to the public sewerage system, the property may have private facilities in the form of a soakaway or private connection to a watercourse.
- An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

## Question 2.3

For your guidance:

- If surface water from the property drains to a public sewer, then a surface water drainage charge is payable.
- Where a surface water drainage charge is currently included in the property's water and sewerage bill but, on inspection, the buyer finds that surface water from the property does not drain to a public sewer, then the property may be eligible for a rebate of the surface water drainage charge. If you wish to know who bills the sewerage services for this property then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit [www.open-water.org.uk](http://www.open-water.org.uk).

## Question 2.4

For your guidance:

- Thames Water has a statutory right of access to carry out work on its assets. Employees of Thames Water or its contractors may, therefore, need to enter the property to carry out work.
- Please note if the property was constructed after 1st July 2011 any sewers and/or lateral drain within the boundary of the property are the responsibility of the householder.
- The approximate boundary of the property has been determined by reference to the Ordnance Survey Record or the map supplied.
- The presence of a public sewer running within the boundary of the property may restrict further development. The Company has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Company, or its contractors, needing to enter the property to carry out work.
- 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.

### Question 2.4.1

For your guidance:

- Private pumping stations installed before 1st July 2011 will be transferred into the ownership of the sewerage undertaker.
- From the 1st October 2016 private pumping stations which serve more than one property have been transferred into public ownership but may not be recorded on the public sewer map.
- The approximate boundary of the property has been determined by reference to the Ordnance Survey Record or the map supplied.
- The presence of a public pumping station within the boundary of the property may restrict further development. The company has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the company, or its contractors, needing to enter the property to carry out work.
- 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.

### Question 2.5

For your guidance:

- From the 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.
- The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the local authority requiring a property to be connected to the public sewer.
- The measurement is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
- 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.

### Question 2.5.1

For your guidance:

- Private pumping stations installed before 1st July 2011 will be transferred into the ownership of the sewerage undertaker.
- From the 1st October 2016 private pumping stations which serve more than one property have been transferred into public ownership but may not be recorded on the public sewer map.
- The presence of a public pumping station within 50 metres of the building(s) within the property can result in the local authority requiring a property to be connected to the public sewer.
- The measurement is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
- 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.

## Question 2.6

For your guidance:

- Any sewers and/or lateral drains within the boundary of the property are not the subject of an adoption agreement and remain the responsibility of the householder. Adoptable sewers are normally those situated in the public highway.
- This enquiry is of interest to purchasers who will want to know whether or not the property will be linked to a public sewer.
- Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities.
- Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991 and meeting the requirements of 'Sewers for Adoption' 6<sup>th</sup> Edition.

## Question 2.7

For your guidance:

- From the 1st October 2011 most private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have been approved or consulted about any plans to erect a building or extension on the property over or in the vicinity of these.
- Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.

## Question 2.8

For your guidance:

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

## Question 2.9

For your guidance:

- The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated.
- The sewerage undertaker’s records were inspected to determine the nearest sewage treatment works.
- It should be noted that there may be a private sewage treatment works closer than the one detailed above that has not been identified.
- As a responsible utility operator, Thames Water Utilities Ltd seeks to manage the impact of odour from operational sewage works on the surrounding area. This is done in accordance with the Code of Practice on Odour Nuisance from Sewage Treatment Works issued via the Department of Environment, Food and Rural Affairs (DEFRA). This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works. However DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic based environments. For more information visit [www.thameswater.co.uk](http://www.thameswater.co.uk)

### Question 3.1

For your guidance:

- The Company does not keep details of private supplies. The situation should be checked with the current owner of the property.

### Question 3.2

For your guidance:

- The boundary of the property has been determined by reference to the plan supplied. Where a plan was not supplied, the Ordnance Survey Record was used. If the Water undertaker mentioned in Question 4.1.2 is not Thames Water Utilities Ltd the boundary of the property has been determined by the Ordnance Survey.
- The presence of a public water main within the boundary of the property may restrict further development within it. Water companies have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Company, or its contractors, needing to enter the property to carry out work.

### Question 3.3

For your guidance:

- This enquiry is of interest to purchasers who will want to know whether or not the property will be linked to the mains water supply.



### Question 3.4

For your guidance:

- “Low water pressure” means water pressure below the regulatory reference level, which is the minimum pressure when demand on the system is not abnormal.
- Water Companies are required to include in the Regulatory Register that is presented annually to the Director General of Water Services, properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level)
- The reference level of service is a flow of 9 litres/minute at a pressure of 10metres / head on the customer's side of the outside stop valve (osv). The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. The reference level applies to a single property. Where more than one property is served by a common service pipe, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served. For two properties, a flow of 18 litres/minute at a pressure of 10metres/head on the customers' side of the osv is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS6700 or the Institute of Plumbing handbook.
- **Allowable exclusions** The Company is required to include in the Regulatory Register properties receiving pressure below the reference level, provided that allowable exclusions listed below do not apply.
- **Abnormal demand:** This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand, which are normally expected. Companies should exclude from the reported figures properties which are affected by low pressure only on those days with the highest peak demands. During the report year companies may exclude, for each property, up to five days of low pressure caused by peak demand.
- **Planned maintenance:** Companies should not report low pressures caused by planned maintenance. It is not intended that companies identify the number of properties affected in each instance. However, companies must maintain sufficiently accurate records to verify that low-pressure incidents that are excluded because of planned maintenance are actually caused by maintenance.
- **One-off incidents:** This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as pressure reducing valves or booster pumps); firefighting; and action by a third party. However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.
- **Low-pressure incidents of short duration:** Properties affected by low pressure, which only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded from the reported figures.
- Please contact your water undertaker mentioned in Question 4.1.2 if you require further information on water pressure.

### Question 3.5

For your guidance:

- Water hardness can be expressed in various indices for example the hardness settings for dishwashers are commonly expressed in Clark's degrees, but check with the manufacturer as there are also other units. The following table shows the normal ranges of hardness.

Hardness Category	Calcium (mg/l)	Calcium Carbonate (mg/l)	English Clarke degrees	French degrees	General/ German degrees
Soft	0 to 20	0 to 50	0 to 3.5	0 to 5	0 to 2.8
Moderately Soft	21 to 40	51 to 100	3.6 to 7	6 to 10	2.9 to 5.6
Slightly hard	41 to 60	101 to 150	8 to 10.5	11 to 15	5.7 to 8.4
Moderately hard	61 to 80	151 to 200	10.6 to 14	16 to 20	8.5 to 11.2
Hard	81 to 120	201 to 300	15 to 21	21 to 30	11.3 to 16.8
Very hard	Over 120	Over 300	Over 21	Over 30	Over 16.8

- Please contact your water undertaker mentioned in Question 4.1.2 if you require further information on water hardness.

### Question 3.6

For your guidance:

- Where a meter does not serve the property and the customer wishes to consider this method of charging, they should contact the current owner if they wish to know who bills the water services for this property. For a list of all potential retailers of water services for the property please visit [www.open-water.org.uk](http://www.open-water.org.uk).

### Question 4.4

For your guidance:

- The Water Industry Act 1991 Section 150, The Water Resale Order 2001 provides protection for people who buy their water or sewerage services from a person or company instead of directly from a water or sewerage company. Details are available from the Office of Water Services (OFWAT) website is [www.ofwat.gov.uk](http://www.ofwat.gov.uk).
- The Company may install a meter at the premises where a buyer makes a change of use of the property or where the buyer uses water for:
  - Watering the garden other than by hand (this includes the use of sprinklers).
  - Automatically replenishing a pond or swimming pool with a capacity greater than 10,000 litres.
  - A bath with a capacity in excess of 230 litres.
  - A reverse osmosis unit
- Where a meter does not serve the property and the customer wishes to consider this method of charging, they should contact the current owner if they wish to know who bills the sewerage and water services for this property. For a list of all potential retailers of sewerage and water services for the property please visit [www.open-water.org.uk](http://www.open-water.org.uk).

## Question 4.5

For your guidance:

- If a Trade effluent consent applies to the premises which are the subject of this search, it is for the applicant to satisfy itself as to the suitability of the consent for its client's requirements. The occupier of any trade premises in the area of a sewerage undertaker may discharge any trade effluent proceeding from those premises into the undertaker's public sewers if he does so with the undertaker's consent. If, in the case of any trade premises, any trade effluent is discharged without such consent or other authorisation, the occupier of the premises shall be guilty of an offence.
- Please note any existing consent is dependent on the business being carried out at the property and will not transfer automatically upon change of ownership.
- For further information regarding Trade Effluent consents please contact: Trade Effluent Control, Crossness STW, Belvedere Road, Abbey Wood London SE2 9AQ.

# CommercialDW Drainage and Water Enquiry Terms and Conditions

Customer and Clients are asked to note these terms, which govern the basis on which this CommercialDW Drainage & Water Enquiry is supplied

## Definitions

'Client' means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.

'Company' means a water service company or their data service provider producing the Report.

'Customer' means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or, as an agent for a Client.

'Order' means any request completed by the Customer requesting the Report.

'Property' means the address or location supplied by the Customer in the Order.

'Report' means the drainage and/or water report prepared by The Company in respect of the Property.

'Thames Water' means Thames Water Utilities Limited registered in England and Wales under number 2366661 whose registered office is at Clearwater Court, Vastern Road, Reading, Berks, RG1 8DB;

## Agreement

1 Thames Water agrees to supply the Report to the Customer and the Client subject to these terms. The scope and limitations of the Report are described in paragraph 2 of these terms. Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing these terms to the attention of the Client. The Customer and Client agree that the placing of an Order for a Report indicates their acceptance of these terms.

## The Report

2. Whilst Thames Water will use reasonable care and skill in producing the Report, it is provided to the Customer and the Client on the basis that they acknowledge and agree to the following:-

2.1 The information contained in the Report can change on a regular basis so Thames Water cannot be responsible to the Customer and the Client for any change in the information contained in the Report after the date on which the Report was produced and sent to the Client.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy, completeness and legibility of the address and other information supplied by the Customer or Client.

2.4 The Report provides information as to the location and connection of existing services and should not be relied on for any other purpose. The Report may contain opinions or general advice to the Customer and the Client and Thames Water cannot ensure that any such opinion or general advice is accurate, complete or valid and accepts no liability therefore.

2.5 The position and depth of apparatus shown on any maps attached to the Report are approximate, and are furnished as a general guide only, and no warranty as to its correctness is given or implied. The exact positions and depths should be obtained by excavation trial holes and the maps must not be relied on in the event of excavation or other works made in the vicinity of apparatus shown on any maps.

## Liability

3 Thames Water shall not be liable to the Client for any failure, defect or non-performance of its obligations arising from any failure of, or defect in any machine, processing system or transmission link or anything beyond Thames Water's reasonable control or the acts or omissions of any party for whom Thames Water are not responsible.

3.1 Where the Customer sells this report to a Client (other than in the case of a bona fide legal adviser recharging the cost of the Report as a disbursement) Thames Water shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) be liable for any loss or damage whatsoever and the Customer shall indemnify Thames Water in respect of any claim by the Client.

3.2 Where a report is requested for an address falling within a geographical area where Thames Water and another Company separately provide Water and Sewerage Services, then it shall be deemed that liability for the information given by Thames Water or the Company as the case may be will remain with Thames Water or the Company as the case may be in respect of the accuracy of the information supplied. Where Thames Water is supplying information which has been provided to it by another Company for the purposes outlined in this agreement Thames Water will therefore not be liable in any way for the accuracy of that information and will supply that information as agent for the Company from which the information was obtained.

3.3 Except in respect of death or personal injury caused by negligence, or as expressly provided in these Terms:

3.3.1 The entire liability of Thames Water or the Company as the case may be in respect of all causes of action arising under or in connection with the Report (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) shall not exceed £2,000,000 (two million pounds); and

3.3.2 Thames Water shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) be liable for any loss of profit, loss of goodwill, loss of

reputation, loss of business or any indirect, special or consequential loss, damage or other claims, costs or expenses;

## Copyright and Confidentiality

4. The Customer and the Client acknowledge that the Report is confidential and is intended for the personal use of the Client. The copyright and any other intellectual property rights in the Report shall remain the property of Thames Water or the Company as the case may be. No intellectual or other property rights are transferred or licensed to the Customer or the Client except to the extent expressly provided

4.1 The Customer or Client is entitled to make copies of the Report but is not permitted to copy any maps contained in, or attached to the Report

4.2 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

4.3 The Customer and Client agree (in respect of both the original and any copies made) to respect and not to alter any trademark, copyright notice or other property marking which appears on the Report.

## Payment

5. Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay for the price of the Report specified by Thames Water, without any set off, deduction or counterclaim.

5.1 Unless payment has been received in advance, Customers shall be invoiced for the agreed fee once their request has been processed. Any such invoice must be paid within 14 days. Where the Customer has an account with Thames Water, payment terms will be as agreed with Thames Water.

5.2 No payment shall be deemed to have been received until Thames Water has received cleared funds.

5.3 If the Customer fails to pay Thames Water any sum due Thames Water shall be entitled but not obliged to charge the Customer interest on the sum from the due date for payment at the annual rate of 2% above the base lending rate from time to time of Natwest Bank, accruing on a daily basis until payment is made. Thames Water reserves the right to claim interest under the Late Payment of Commercial Debts (Interest) Act 1998.

5.4 Thames Water reserves the right to increase fees on reasonable prior written notice at any time.

## Cancellations or Alterations

6. Once an Order is placed, Thames Water shall not be under any obligation to accept any request to cancel that Order and payment for the Order shall still be due upon completion of the Report. In cases where an error has been made in the original Order (e.g. the Customer has supplied an incorrect address), the Customer will need to place a second Order, detailing the correct information, and shall be liable to pay a second charge in accordance with clause 5 above.

## Delivery

7. On receiving your order the reports will be posted to you within 10 working days from receipt.

7.1 Delivery is subject to local post conditions and regulations. All items should arrive within 12 working days, but Thames Water cannot be held responsible should delays be caused by local post conditions, postal strikes or other causes beyond the control of Thames Water.

## General

8. If any provision of these terms is or becomes invalid or unenforceable, it will be taken to be removed from the rest of these terms to the extent that it is invalid or unenforceable. No other provision of these terms shall be affected.

8.1 These terms shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

8.2 Nothing in this notice shall in any way restrict the Customer or Clients statutory or any other rights of access to the information contained in the Report.

**These Terms & Conditions are available in larger print for those with impaired vision.**

## 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 TWUL 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. TWUL 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 TWUL's discretion for increased administration costs.

A copy of TWUL'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 Water Industry Act 1991, and you remain dissatisfied you can refer your complaint to CC Water on 0845 039 2837 (it will cost you the same as a local call) or write to them at 11 Belgrave Road, London SW1V 1RB.

### Ways to pay your bill

<b>By Post</b> – Cheque only, made payable to 'Thames Water Utilities Ltd' writing your Thames Water account number on the back. Please fill in the payment slip below and send it with your cheque to Thames Water Utilities Ltd., PO Box 223, Swindon SN38 2TW	<b>By BACS Payment</b> direct to our bank on account number 90478703, sort code 60-00-01 may be made. A remittance advice must be sent to Thames Water Utilities Ltd., PO Box 223, Swindon SN38 2TW. Or fax to 01793 424599 or email: cashoperations@thameswater.co.uk	<b>Telephone Banking</b> By calling your bank and quoting your invoice number and the Thames Water's bank account number 90478703 and sort code 60-00-01	<b>By Swift Transfer</b> You may make your payment via SWIFT by quoting <b>NWBKGB2L</b> together with our bank account number 90478703, sort code 60-00-01 and invoice number
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Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.



## **Search Code**

### **IMPORTANT CONSUMER PROTECTION INFORMATION**

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

#### **The Search Code:**

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

#### **The Code's core principles**

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

#### **Complaints**

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

**Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.**

#### **TPOs Contact Details**

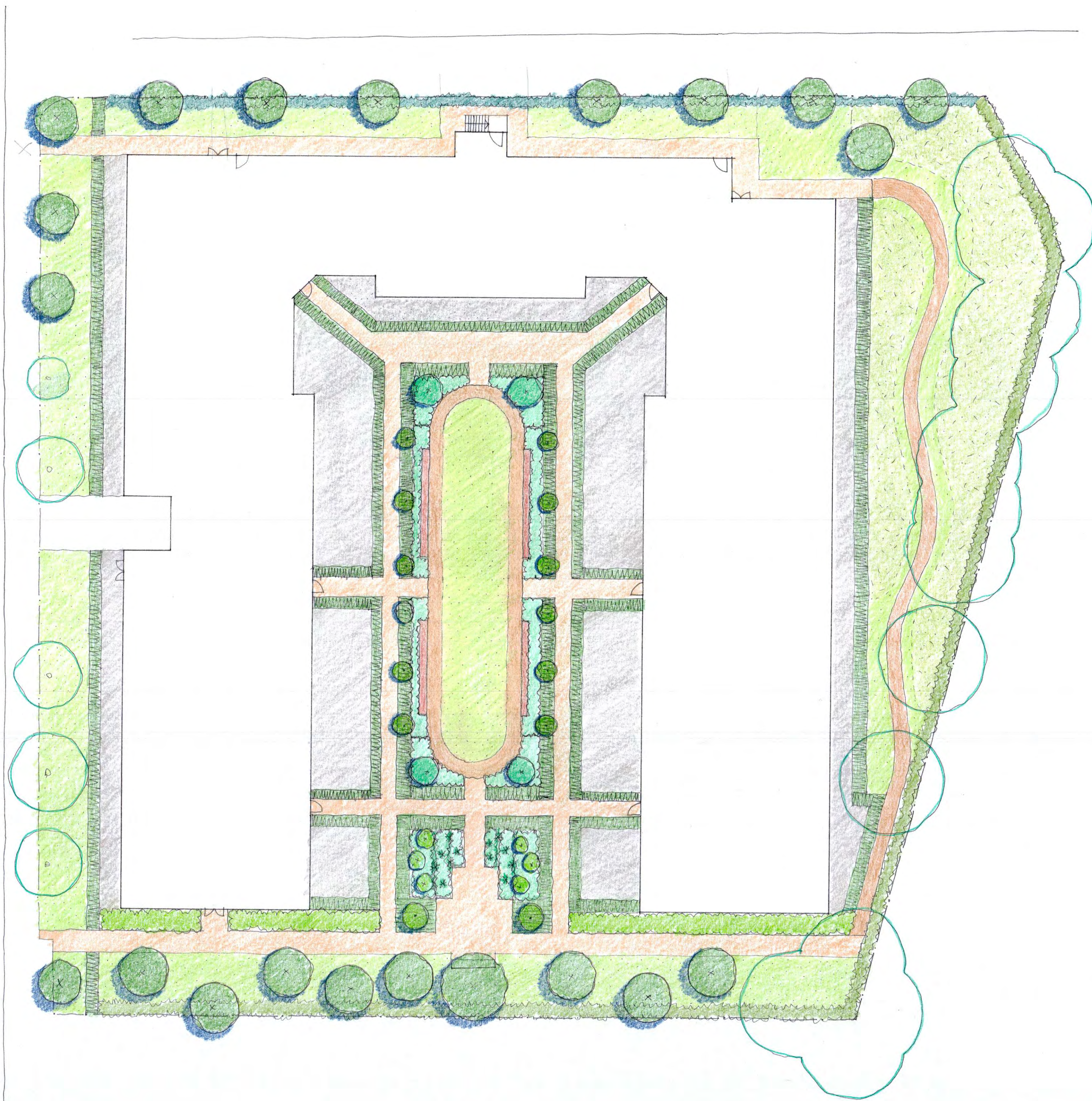
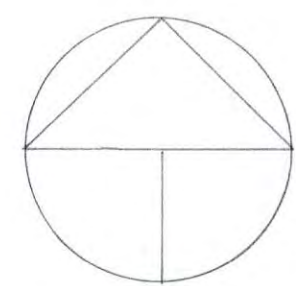
The Property Ombudsman scheme  
Milford House  
43-55 Milford Street  
Salisbury  
Wiltshire SP1 2BP  
Tel: 01722 333306  
Fax: 01722 332296  
Email: [admin@tpos.co.uk](mailto:admin@tpos.co.uk)

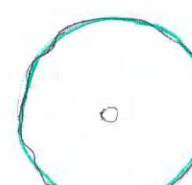


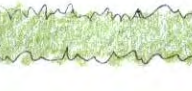









You can get more information about the PCCB from [www.propertycodes.org.uk](http://www.propertycodes.org.uk)

**PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE**

**Appendix D**  
Thames Water Drainage & Water Property Search





-  Existing trees to be retained
-  Proposed trees
-  Proposed specimens/topiary
-  Proposed native mix hedges
-  Proposed tall clipped evergreen hedges
-  Proposed low clipped evergreen hedges
-  Proposed medium/tall ornamental planting
-  Proposed low ornamental planting
-  Proposed lawn areas
-  Proposed wildflower areas
-  Proposed footpaths to be plank stone slab paving
-  Proposed footpaths to be resin bound paving
-  Proposed seating

alban  
landscape\_

Chartered Landscape Architects

Heartwood Studios  
50 Langley Grove  
St Albans, AL4 9DU

Tel. 01727 811553  
www.albanlandscape.com  
info@albanlandscape.com

Project	29 Broadwater Road, Welwyn Garden City	
Title	SKETCH LANDSCAPE PROPOSALS	
Scale	1:250@A1	
Dwg.no.	19512.001	Rev.
Date	June 2019	
Drawn	KC	



BROADWATER ROAD

BROAD COURT



Ground Floor Plan  
1 : 200

DRAFT

P1	XXX	8.07.2019
Revision	Amendment	Date
JP	JD	JD
Drawn by	Reviewed by	Approved by
60193	07/04/19	1 : 200 @ A1
MCB Number	Date Created	Scale @ A1

McBains

McBains Ltd  
5th Fl, 26 Finsbury Square London EC2A 10S  
+44 (0)20 7786 7900 mcbains.co.uk

Client  
Hightown Housing Association

Project  
29 Broadwater Road  
Welwyn Garden City

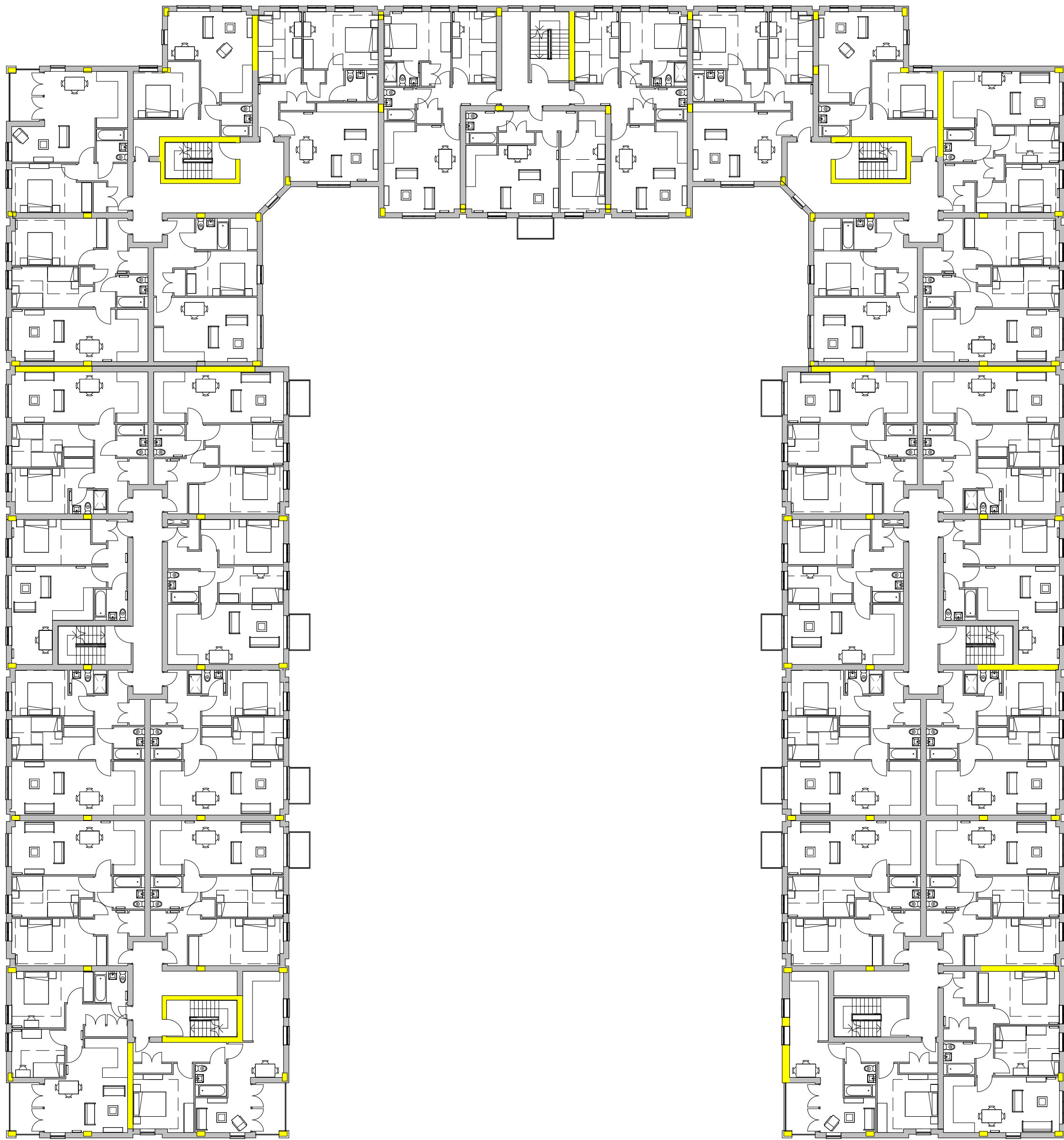
Drawing Title  
Ground Floor Plan

ARCHITECTURE

Drawing / Document Reference	Status
BRW01 - MCB - XX - 00 - DR - A - 0006	S2 - P1
Project Name	Originator
Zone	Level
Type	Discipline
Number	Subsidiarity
Revision	

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2 0 2 4 6 8 10  
SCALE 1:200  
m



First & Second Floor Plan  
1 : 200

DRAFT

P1	XXX	8.07.2019
Revision	Amendment	Date
JP	JD	JD
Drawn by	Reviewed by	Approved by
60193	07/05/19	1 : 200 @ A1
MCB Number	Date Created	Scale @ A1

McBains

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Client  
Hightown Housing Association

Project  
29 Broadwater Road  
Welwyn Garden City

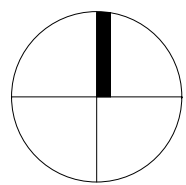
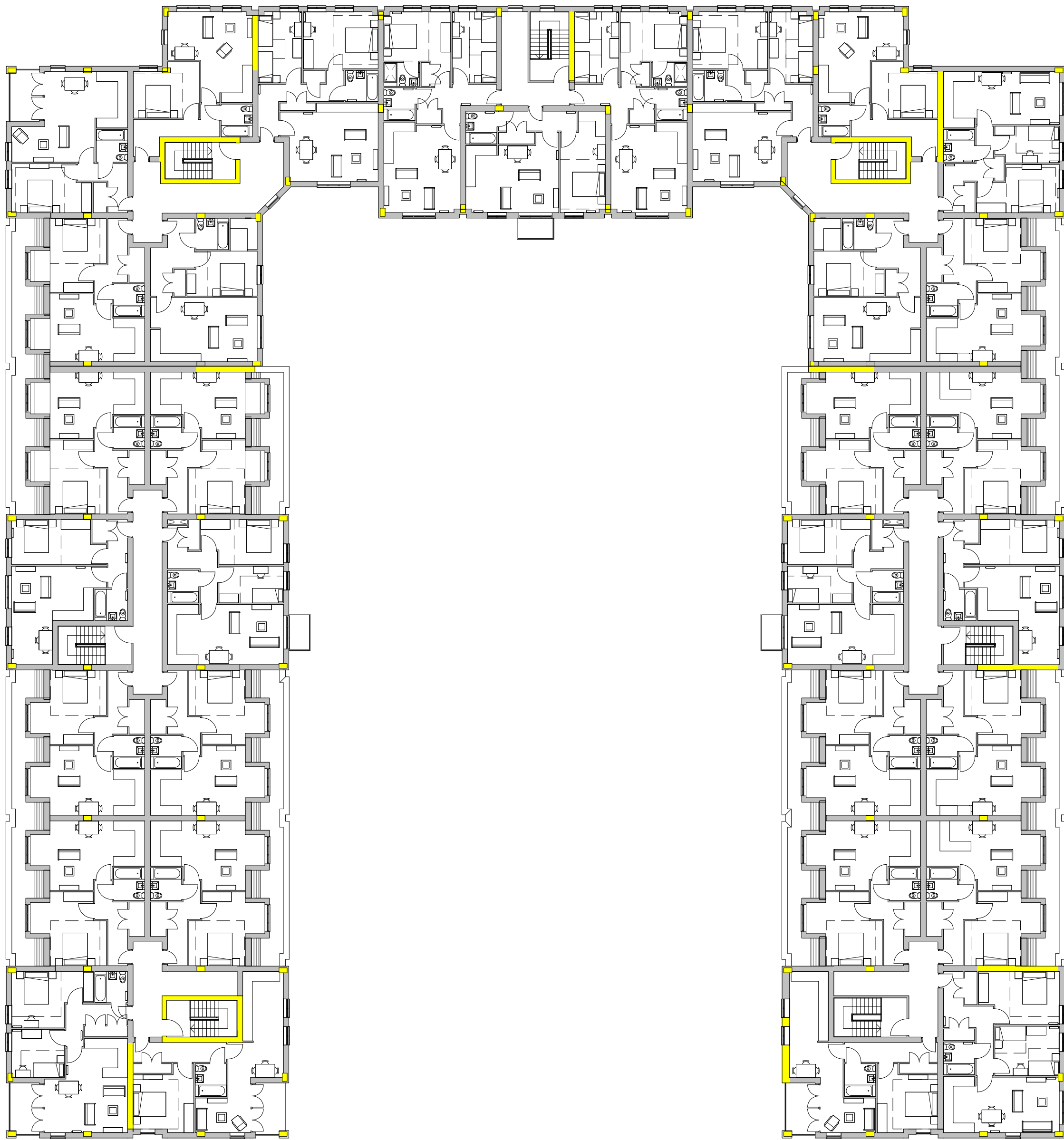
Drawing Title  
First & Second Floor Plan

ARCHITECTURE

Drawing / Document Reference							Status	
BRW01 - MCB - XX - 1/2 - DR - A - 0007							S2 - P1	
Project Item	Originator	Zone	Level	Type	Discipline	Number	Suitability	Revision

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2 0 2 4 6 8 10  
SCALE 1:200 m



Third Floor Plan  
1 : 200



DRAFT

P1	XXX	8.07.2019
Revision	Amendment	Date
JP	JD	JD
Drawn by	Reviewed by	Approved by
60193	07/05/19	1 : 200 @ A1
MCB Number	Date Created	Scale @ A1

McBains

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Client  
Hightown Housing Association

Project  
29 Broadwater Road  
Welwyn Garden City

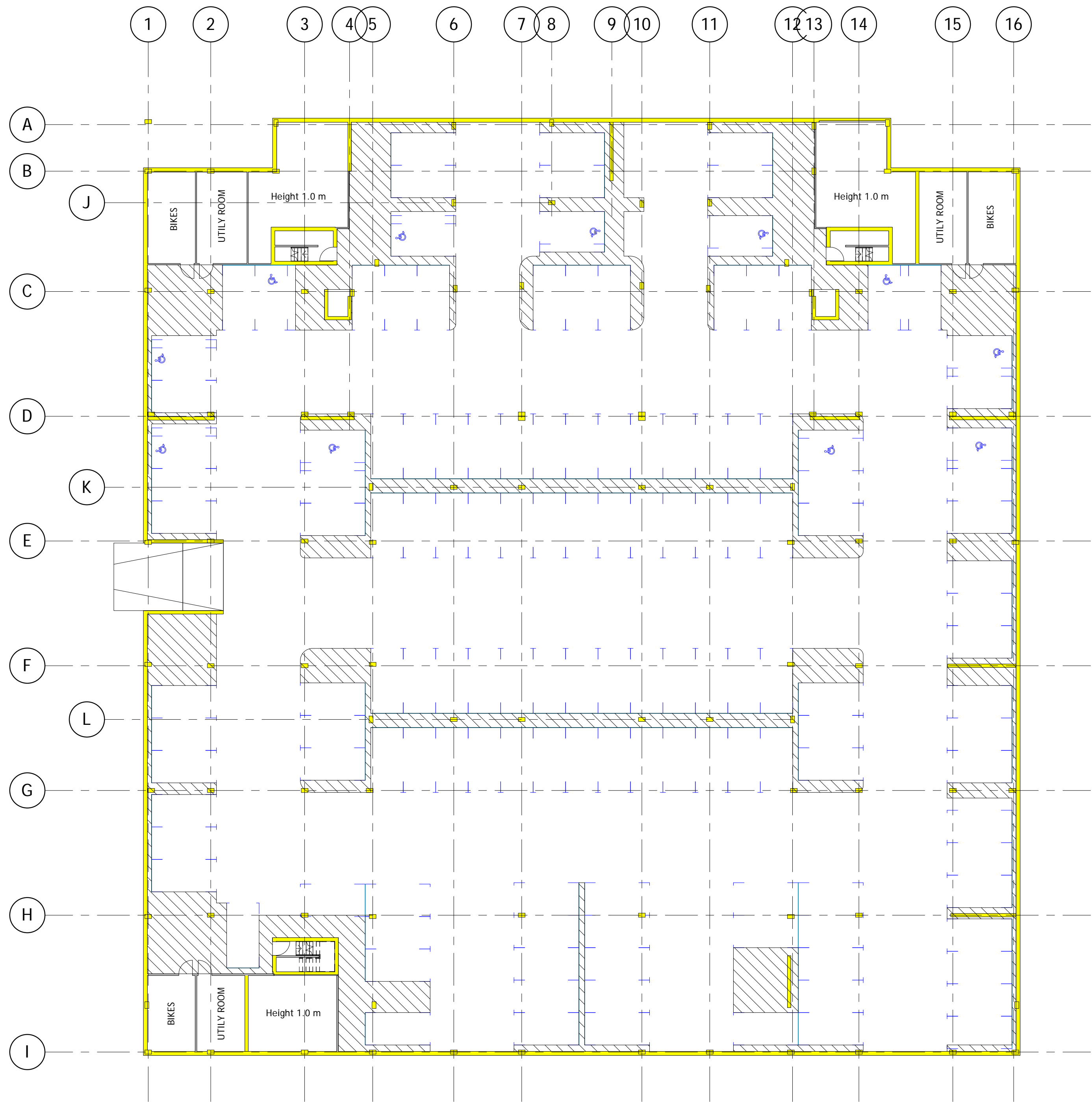
Drawing Title  
Third Floor Plan

ARCHITECTURE

Drawing / Document Reference										Status	
BRW01 - MCB - XX - 03 - DR - A - 0008										S2 - P1	
Project Item	Originator	Zone	Level	Type	Discipline	Number	Suitability	Revision			

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Basement Floor Plan  
1 : 200



DRAFT

P1	XXX	8.07.2019
Revision	Amendment	Date
JP	JD	JD
Drawn by	Reviewed by	Approved by
60193	07/05/19	1 : 200 @ A1
MCB Number	Date Created	Scale @ A1

McBains

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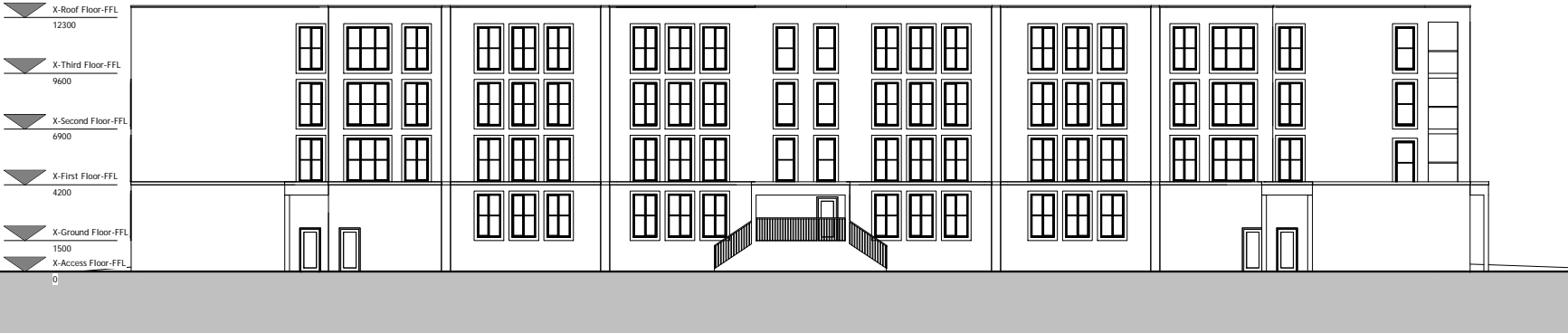
Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
Basement Floor Plan

ARCHITECTURE

Drawing / Document Reference						Status	
BRW01	MCB	XX	B1	DR	A	0005	S2 - P1
Project Item	Originator	Zone	Level	Type	Discipline	Number	Suitability Revision

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North Elevation  
1 : 200

P1 - XXX	3/07/2018	
JP	JD	JD
60193	07/05/19	1 : 200 @ A3

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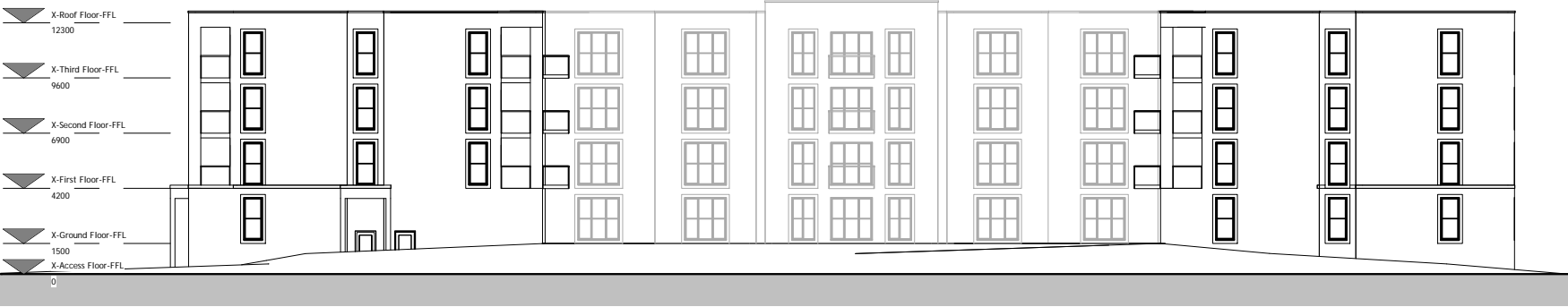
Client  
Hightown Housing Association

Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
North Elevation

ARCHITECTURE			
BRW01 - MCB - XX - XX - DR - A - 0001	52	P1	

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South Elevation  
1 : 200

P1	XXX	3/07/2018
JP	JD	JD
60193	06/25/19	1 : 200 @ A3

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Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
South Elevation

ARCHITECTURE			
BRW01 - MCB - XX - XX - DR - A - 0002	52	P1	

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West Elevation  
1 : 200

P1	XXX	3.07.2019
JP	JD	JD
60193	06/25/19	1 : 200 @ A3

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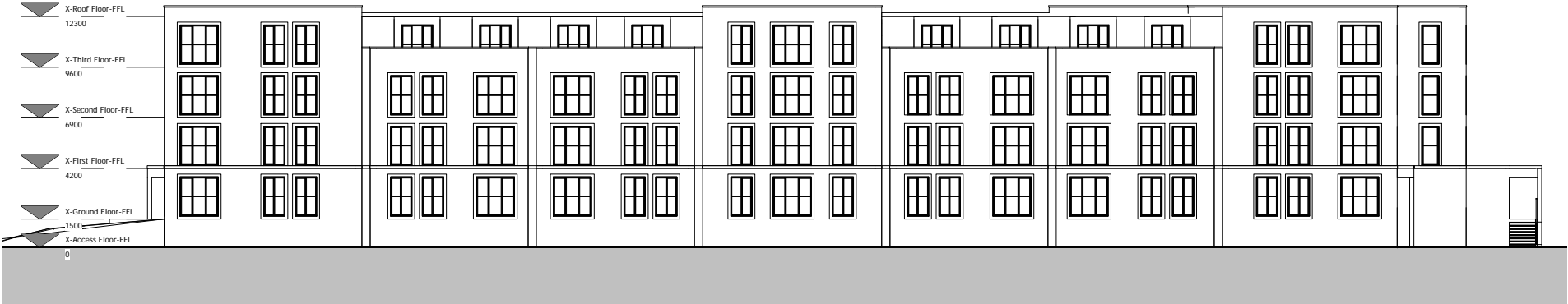
Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
West Elevation

ARCHITECTURE			
BRW01 - MCB - XX - XX - DR - A - 0003	52	P1	

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East Elevation  
1 : 200

P1 - 000		3/07/2018
Author	Checker	Approver
60193	06/25/19	1 : 200 @ A3

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Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
East Elevation

ARCHITECTURE			
BRW01 - MCB - 00 - 00 - 00 - 00 - 0004	52 - P1		

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Section AA  
1 : 200

P1	XXX	8.07.2019
JP	JD	JD
60193	07/05/19	1 : 200 @ A3

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Client  
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Project  
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Welwyn Garden City

Drawing Title  
Section AA

ARCHITECTURE					
BRW01 - MCB - XX - XX - DR - A - 0010	S2 - P1				

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**Appendix E**  
Environment Agency Flood Map for Planning

# Flood map for planning

Your reference  
**C12885 29 Bro**

Location (easting/northing)  
**524257/212648**

Created  
**11 Jul 2019 12:30**

**Your selected location is in flood zone 1, an area with a low probability of flooding.**

## **This means:**

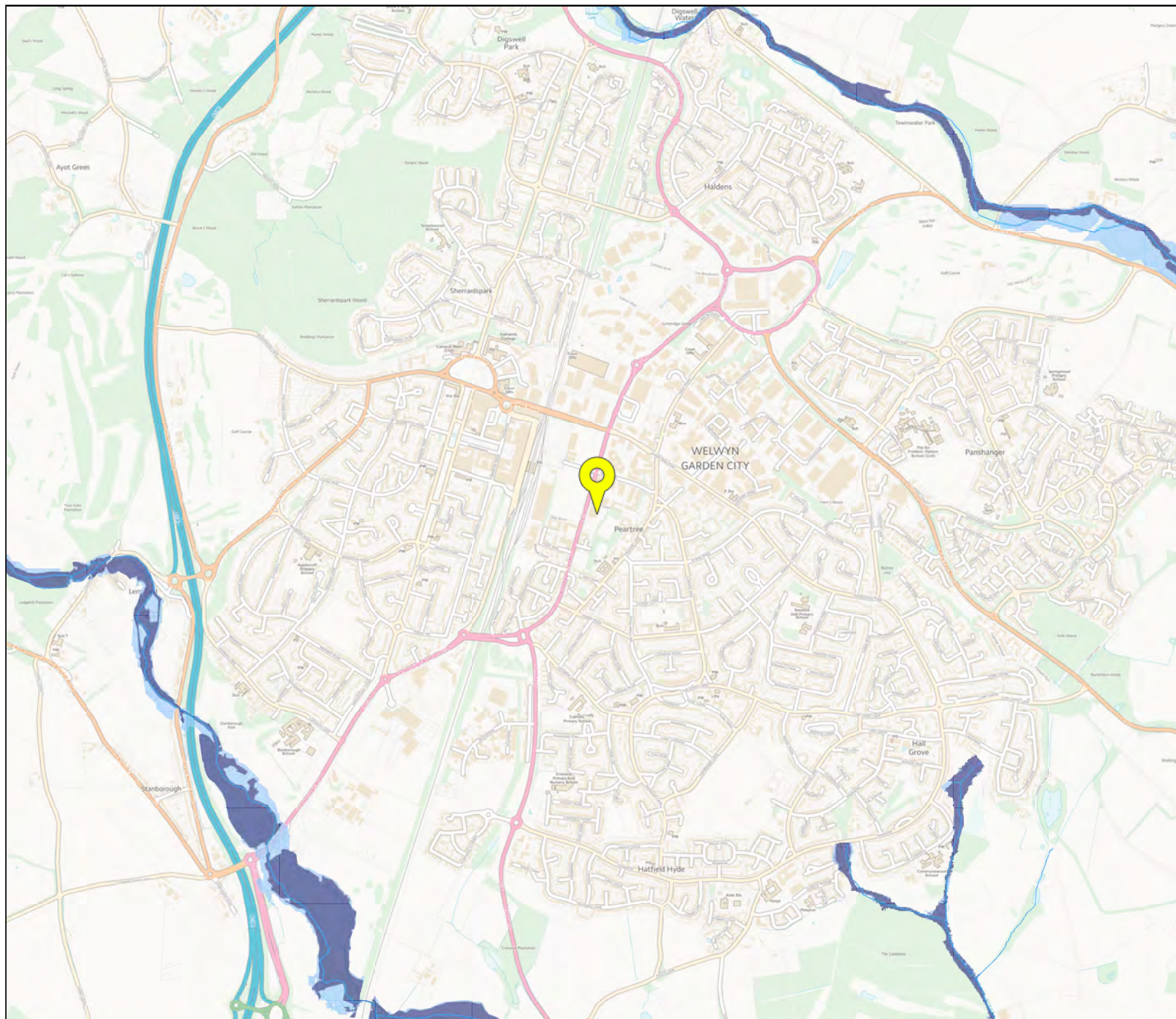
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

## **Notes**

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

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<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>











## Flood map for planning

Your reference  
**C12885 29 Bro**

Location (easting/northing)  
**524257/212648**

Scale  
**1:25000**

Created  
**11 Jul 2019 12:30**

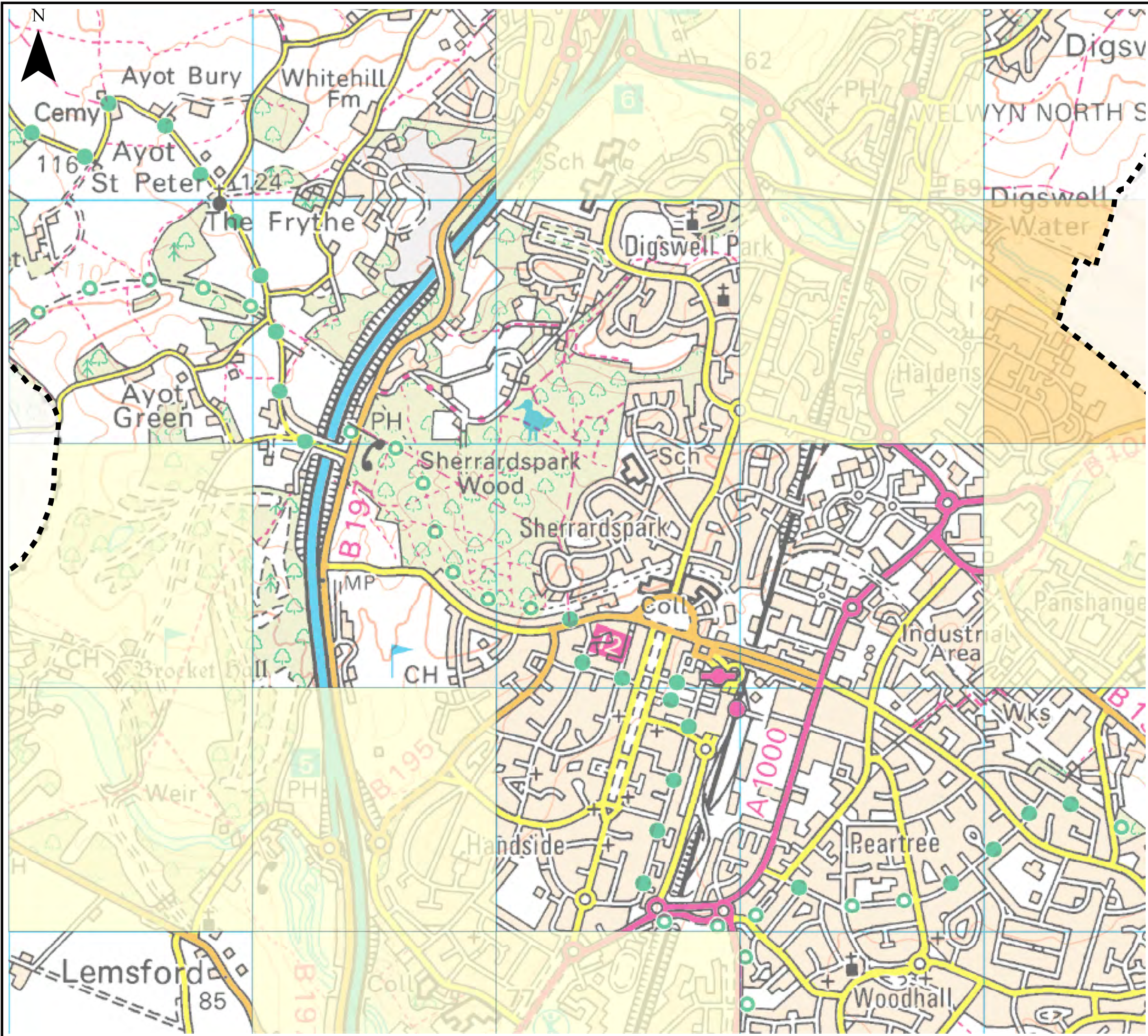
-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 200 400 600m

## **Appendix F**

### Flood Risk from Groundwater and Susceptibility to Groundwater Flooding Maps





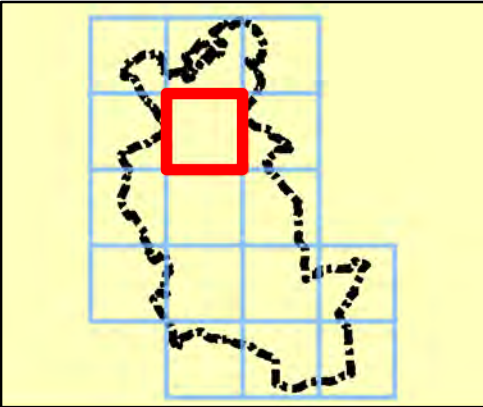
**Notes**

The Areas Susceptible to Groundwater Flooding (AStGWF) is a strategic scale map showing groundwater flood areas on a 1km square grid. The data was produced to annotate indicative Flood Risk Areas for Preliminary Flood Risk Assessment (PFRA) studies and allow the Lead Local Flood Authorities (LLFAs) to determine whether there may be a risk of flooding from groundwater.

This data shows the proportion of each 1km grid square where geological and hydrogeological condition show that groundwater might emerge. It does not show the likelihood of groundwater flooding occurring. It does not take account of the chance of flooding from groundwater rebound. This dataset covers a large area of land, and only isolated locations within the overall susceptible area are actually likely to suffer the consequences of groundwater flooding.

The AStGWF data should be used only in combination with other information, for example local data or historic data. It should not be used as sole evidence for any specific flood risk management, land use planning or other decisions at any scale. However, the data can help to identify areas for assessment at a local scale where finer resolution datasets exist.

**Key Plan**



**Legend**

Welwyn Hatfield Borough boundary

**Areas Susceptible to Groundwater Flooding**

**Classification**

- ≥ 75%
- ≥ 50% < 75%
- ≥ 25% < 50%
- < 25%

Note:  
Absence of values for any grid square means that no part of that square is identified as being susceptible to groundwater emergence.



REF	Date	Comments
A	Jun 15	Draft
B	Nov 15	Final
C		

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**WELWYN HATFIELD BOROUGH COUNCIL  
APPENDIX G  
GROUNDWATER FLOOD MAPS**

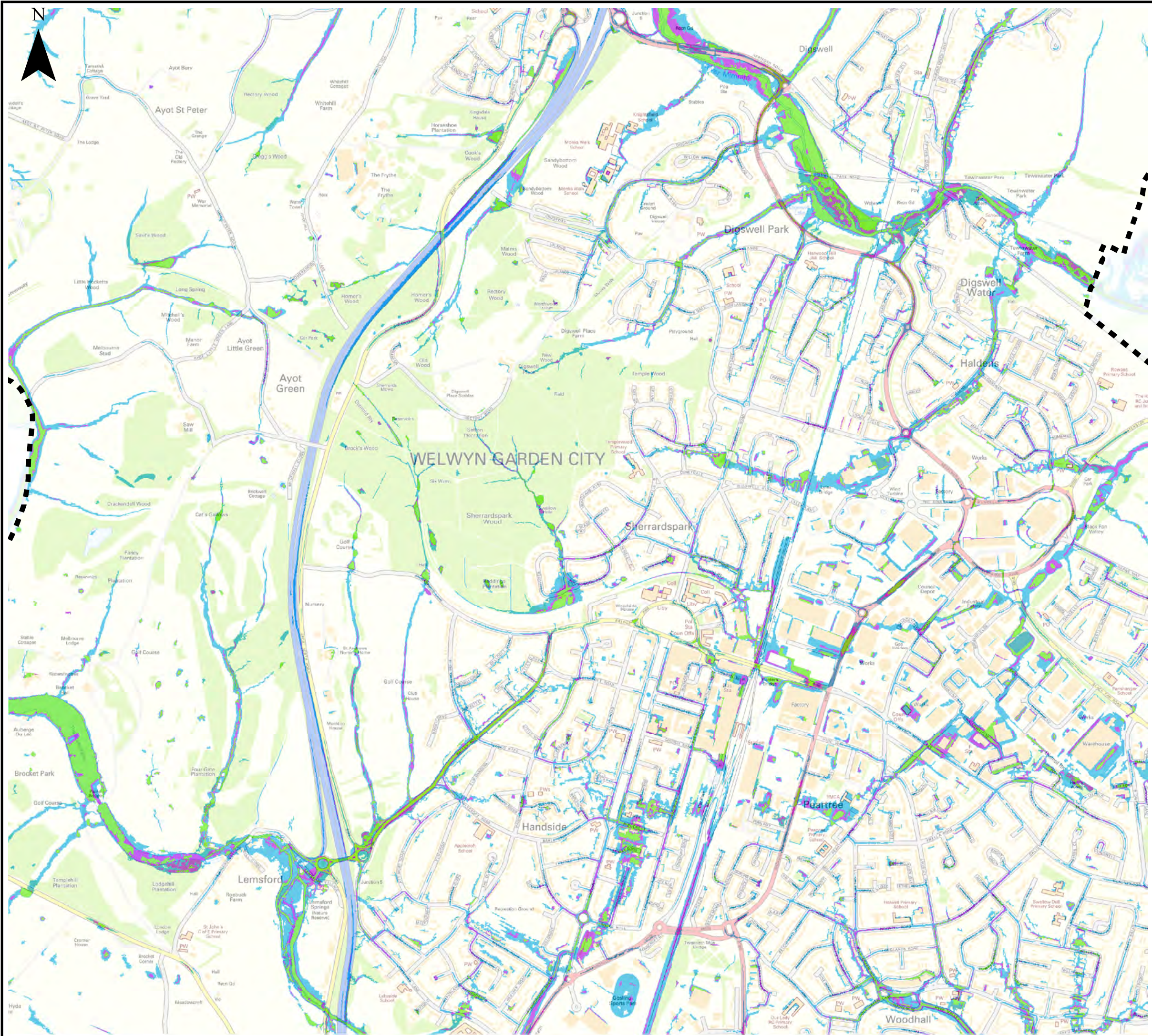
Sheet No: 5 of 16 Index Number: WHBC\_5

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**Appendix G**  
Environment Agency Risk of Flooding from Surface Water Map





Notes

The updated Flood Map for Surface Water (uFMfSW) shows the flooding that takes place from the 'surface runoff' generated by rainwater (including snow and other precipitation) which: (a) is on the surface of the ground (whether or not it is moving), and (b) has not yet entered a watercourse, drainage system or public sewer.

The uFMfSW will pick out natural drainage channels, rivers, low areas in the floodplain and flow paths between buildings but it will only indicate flooding caused by local rainfall.

Note: The uFMfSW shows predictions of flooded areas but does not show whether individual properties will be affected by surface water flooding or have been affected in the past. The uFMfSW should not be used to predict if individual properties will flood.

Key Plan



Legend

- Welwyn Hatfield Borough boundary
- uFMfSW\* 30-year Extent
- uFMfSW\* 100-year Extent
- uFMfSW\* 1,000-year Extent

\*updated Flood Map for Surface Water



REF	Date	Comments
A	Jun 15	Draft
B	Nov 15	Final
C		

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WELWYN HATFIELD BOROUGH COUNCIL APPENDIX F SURFACE WATER FLOOD MAPS

Sheet No:5 of 16 Index Number: WHBC\_5

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