



The Lake House
Old Hollow, Rowfant, Crawley, RH10 4TB

Flood Risk Assessment

For

Planit Consulting

Document Control Sheet

The Lake House

Old Hollow, Rowfant, Crawley, RH10 4TB

Planit Consulting

This document has been issued and amended as follows:

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1.0 Introduction

- 1.1 This Flood Risk Assessment (FRA) and Drainage Strategy has been produced by Motion on behalf of their client, Planit Consulting. It supports the planning application for a replacement dwelling on the site of The Lake House, Old Hollow, Rowfant, Crawley.
- 1.2 A site location of the proposed development can be seen in [Appendix A](#) and details of the proposed development can be seen in [Appendix B](#). As can be seen, the existing dwelling is to be demolished and a new dwelling is to be erected in the same location.
- 1.3 The existing dwelling of The Lake House lies on the western side of The Mill Pond, a large man-made body of water that was formerly used to by Rowfant Mill, which is located on The Mill Pond's northern edge. This large body of water is aligned approximately south-north and feeds Kits Brook, which drains northwards and is a tributary of the Burstow Stream. The Mill Pond's level is controlled by a weir and sluice gate by Rowfant Mill, which lies on the north side of a private road that runs west-east from Old Hollow and sits atop the impounding structure to Mill Pond.
- 1.4 The Mill Pond is shown in the Environment Agency's (EA's) Flood Map for Planning to be within Flood Zone 2 – an area at between a 1 in 100-year and 1 in 1,000-year risk of flooding. While this area of flood risk is not shown to ingress into the site and the location of The Lake House, its proximity to the proposed development necessitates a detailed review of flooding to ensure that the proposed replacement dwelling will not be at risk of flooding and that it would not increase flood risk to others.
- 1.5 The aim of this FRA document is to satisfy the requirements of the LPA, Lead Local Flood Authority (LLFA) and the Environment Agency (EA) in relation to development and flood risk. Specific objectives of this FRA are to:
 - „ Assess the proposed development against the requirements of the National Planning Policy Framework (NPPF).
 - „ Assess whether the proposed development has taken appropriate consideration of the risk of flooding from all potential flood sources.
 - „ Detail how the proposed development will be safe with respect to flooding during its lifetime.
- 1.6 The FRA will also consider whether any measures need to be implemented to mitigate flood risk on the site, should this be deemed necessary by the conclusions of the FRA.

2.0 Site Description

Table 2.1 – Site Summary

Site Name	The Lake House
Location	Old Hollow, Rowfant, Crawley, RH10 4TB
Grid Reference	TQ316375
Application Type	Replacement residential dwelling in the location of the existing building
Flood Zone	1 (Very Low Risk)
Surface Water Flood Risk	Low – Very Low
Local Water Authority	Southern Water
Local Planning Authority	Crawley Borough Council (CBC)
Lead Local Flood Authority	West Sussex County Council (WSCC)

Site Location and Description

- 2.1 The Mill Pond and The Lake House are in a rural setting to the east of Crawley and approximately 1.4km east of the M23 motorway. They are surrounded by fields and wooded areas.
- 2.2 The Mill Pond is approximately 2.7 hectares in area and is aligned south-north. The Mill Pond lies on the course of Kits Brook, which is a tributary of the Burstow Stream. The Mill Pond was created to serve a forge in the 16th and 17th Centuries and was latterly used to drive Rowfant Mill for corn and flour production, which ceased in the 1930's. Since then, it has been used for fishing in this picturesque location.
- 2.3 The Mill Pond drains to the north and is impounded by a dam, atop which is a private roadway leading from Old Hollow to the west. As mentioned in the introduction, the level of The Mill Pond is controlled by a weir and sluice gate.
- 2.4 The Lake House lies on the western side of The Mill Pond, roughly midway up its length. The original property of The Lake House is western-most on the site, to which a studio flat was added in the 1960's, which extends from the original property towards The Mill Pond.
- 2.5 As will be discussed in 'Topography' below, ground rises steeply upwards from The Mill Pond to the west and the property and studio flat are positioned at a higher level well above the water level in The Mill Pond.
- 2.6 The existing site layout can be seen in the survey plan in [Appendix C](#) and site photos that show the layout of the existing property (and the site's topography) can be seen in [Appendix D](#).

Topography

- 2.7 A topographic survey of the site and the existing dwelling has been carried out. This has been referenced to a local datum of 50.00m (the ground floor level the original property), thus does not reflect Ordnance Datum.
- 2.8 The outputs of the local datum topographic survey can be seen in the survey plan in [Appendix C](#) of this report and levels have also been provided relative to the proposed development layout in [Appendix A](#).

- 2.9 To attempt to relate the local datum site levels back to Ordnance Datum, LiDAR data was reviewed, and contours extracted from this data were laid over Ordnance Survey mapping. This output can be seen in [Appendix E](#).
- 2.10 A review of the plans in [Appendix A](#) and [Appendix C](#) shows that the water level of The Mill Pond is measured at 46.00m, which is four metres below the existing property's floor level and local datum level of 50.00m. The LiDAR data in [Appendix E](#) places the water level at approximately 79 metres Above Ordnance Datum (mAOD), thus the local datum of 46.00m will be considered equal to 79.00 mAOD.
- 2.11 The survey plan in [Appendix C](#) shows that the original (western) portion of The Lake House is at or around the FFL of the main dwelling at 50.00m (circa 83.00 mAOD). This level continues into the first floor of the studio flat towards the lake, but the studio flat has a ground floor below, which the topographic survey indicates is at approximately 47.70m (circa 80.70 mAOD).
- 2.12 Therefore, the lowest level of the existing property is approximately 1.70m vertically above the water level of The Mill Pond.
- 2.13 Visual evidence of this can be seen in the site photos in [Appendix D](#), which all show how the levels fall steeply across the site towards The Mill Pond and that the levels of the existing property of The Lake House are well above the water level of The Mill Pond.
- 2.14 The LiDAR contours in [Appendix E](#) also show that the crest level of the impounding dam is at approximately 79.00 mAOD (46m local datum), with levels falling away on the north side of the dam by several metres or more. This means that the water level of The Mill Pond could never exceed 79.00 mAOD because if water levels were to rise in The Mill Pond, they would weir over the crest of the dam.

The Proposed Development

- 2.15 The proposed development is as per the plans in [Appendix B](#) of this report, which show the ground floor and first floor layouts of the replacement dwelling.
- 2.16 The proposed development will provide accommodation across two 'wings'; one on the northern, pondward side, and one on the southern landward side.
- 2.17 The ground floor of the northern wing will be set at 47.4m to 47.5m (local datum) or 80.4mAOD – 80.5 mAOD and will be used as a garage and garden room and store with a terrace.
- 2.18 Steps lead up from the northern wing's ground floor to the southern wing's ground floor, which will be set at 49.5m (82.5 mAOD) and will accommodate non-sleeping residential spaces such as the kitchen, family room, living room, dining room and office space.
- 2.19 The northern wing will provide self-contained accommodation in the form of a studio apartment on the first floor, with two bedrooms and a kitchen with living space. Floor levels will be set at 50.4m (83.4 mAOD).
- 2.20 The first floor of the southern, main dwelling provides 6no. bedrooms, plus bathrooms and dressing rooms. The floor levels of the southern wing's first floor will be 52.4m (85.4 mAOD).
- 2.21 The layout and levels of the proposed development are important in the discussion of flood risk, the development's vulnerability, and appropriateness in this location, which is discussed in Section 3, below.

3.0 Flood Risk Legislative and Policy Framework

- 3.1 The Flood and Water Management Act 2010 (FWMA) received Royal Assent on 8th April 2010. The Act was introduced to enforce some of the key proposals set out within UK Government flood and water strategies along with UK Government's response to the Sir Michael Pitt's Review of the summer 2007 floods.
- 3.2 LLFA's including WSCC have a responsibility under the FWMA to develop, maintain, apply and monitor the application of a strategy for local flood risk in their area. Local flood risk is defined as flood risk arising from local sources, such as surface water run-off, groundwater and ordinary watercourses (i.e. non main rivers). The Environment Agency plays a role in managing the watercourses designated as 'main rivers'.

The Environment Agency Flood Map for Planning

- 3.3 The EA'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.
- 3.4 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.
- 3.5 Table 3.1, below, lists the flood zone categories and explains the flood risk probabilities they represent.

Table 3.1 – 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 tidal 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 tidal flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water must flow or be stored in times of flood, which is typically the 1 in 30-year flood event or greater. Local planning authorities should identify in their SFRAs areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map, but may be distinguished in Product 4 information, for example)

The National Planning Policy Framework

- 3.6 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 (PPG) to the NPPF provides further information on the policies set out in the NPPF. It encourages development to take place 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. This includes ensuring that flood risk is considered at all stages of the planning process, avoiding inappropriate development in areas at risk of flooding and directing development away from those areas where risks are highest.
- 3.7 A site-specific FRA is required for proposals of 1ha or greater in Flood Zone 1, all proposals for development in Flood Zones 2 and 3, or in an area within Flood Zone 1 that has critical drainage problems

(as notified to the local planning authority by the EA). The site is located within Flood Zone 1 and is greater in size than one hectare and, therefore, an FRA is required.

- 3.8 The FRA should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.
- 3.9 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 PPG 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.
- 3.10 Within the different Flood Zones each of the above development categories are considered appropriate or not permissible. The Technical 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.
- 3.11 The above information sets out the basis by which developments must be assessed in terms of flood risk.
- 3.12 Later in this document, the proposed development at The Lake House will be reviewed against the Flood Zone in which it is located. An assessment will be made of the appropriateness of the proposed development, as per the advice within the PPG to the NPPF, taking account of the proposed development layout.

Lead Local Flood Authority

- 3.13 As of April 2015, the LLFA became a statutory consultee on all major planning applications. The LLFA is required to assess planning applications in respect of surface water drainage and sustainable drainage systems. WSCC is the LLFA for the Crawley and Rowfant area.

4.0 Current Flood Risk

- 4.1 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 the following two sections. Residual flood risk is summarised in Table 6.1.

Flooding from Rivers and the Sea

- 4.2 The EA's Flood Map for Planning ([Appendix F](#)) shows that The Mill Pond is within Flood Zone 2 – an area at between a 1 in 100-year and 1 in 1,000-year risk of flooding. This area of flood risk is not shown to ingress into the location of The Lake House, except for where Flood Zone 2 shows some extension into of the property boundary by virtue of the square-edged, low resolution of the outline (which is on a 5-metre grid).
- 4.3 Referring back to the topographic information presented in Section 2 of this report (paragraphs 2.7 to 2.14) and the levels of the proposed dwelling (paragraphs 2.15– 2.21), it is clear that the footprint and internal spaces of the proposed dwelling will be at least 1.4m – 1.5m vertically higher than the water level of The Mill Pond. The ground floor of the northern wing, which is closest to The Mill Pond, will contain the garage and garden room/store and these non-residential uses will be at 47.4m – 47.5m (80.4mAOD to 80.5 mAOD).
- 4.4 The lowest level of residential accommodation will within the southern wing, which will be set at 82.5mAOD, which is 3.5m vertically above the water level in The Mill Pond. Finally, sleeping accommodation will be at a minimum of 83.4 mAOD in the southern wing's self-contained apartment, which will be 4.4m vertically above the water level in The Mill Pond.
- 4.5 Therefore, the proposed Lake House replacement dwelling is not within an area at fluvial flood risk. The levels information clearly tell of how the proposed dwelling will be well above and outside any flood risk areas associated with The Mill Pond.
- 4.6 As a final note on this, it has been told that The Mill Pond's water level is controlled by a weir and sluice gate and that the pond's water is impounded by a dam structure at its northern extent. The LiDAR level/contour data presented in [Appendix E](#) shows that the crest level of the dam is approximately 79 mAOD, thus if the weir and sluice gates were to fail and water levels were to rise in The Mill Pond, they would start to overtop the dam at 79 mAOD. As such, levels would not be able to rise further and certainly would never threaten the floor levels described for the proposed development.
- 4.7 Consequently, the proposed development can be firmly concluded as being within Flood Zone 1 (very low risk).

Fluvial Flood Risk and the Appropriateness of the Development in this Location

- 4.8 Residential development is considered to be 'more vulnerable' according to the classifications in the NPPF.
- 4.9 The proposed development at The Lake House has been demonstrated to be within Flood Zone 1.
- 4.10 Table 3 of the PPG to the NPPF (see next page) states that 'more vulnerable' development is appropriate in Flood Zone 1, thus the proposed development is appropriate in this location and with the current and future level of flood risk.

Table 3 of the NPPF - Flood Risk Vulnerability and Flood Zone Compatibility

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

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Surface Water Flooding

- 4.11 The EA's Risk of Flooding from Surface Water (RoFSW) dataset has been reviewed and the outlines for surface water flood risk in the 1 in 30-year (turquoise), 1 in 100-year (mid-blue) and 1 in 1,000-year (dark blue) are presented in Figure 4.1, below.

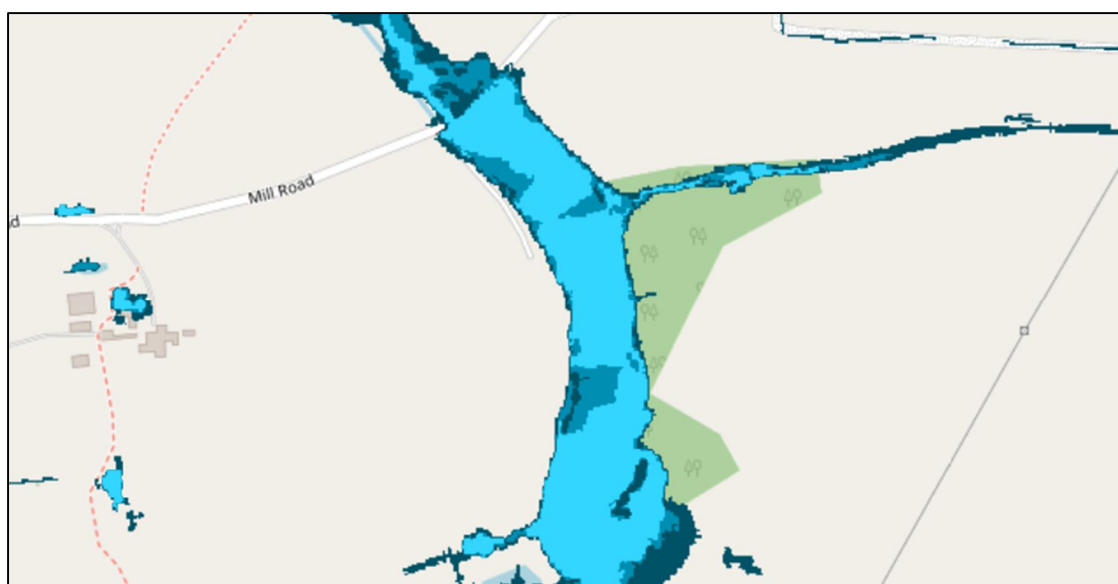


Figure 4.1: Surface water flood risk outlines for 1 in 30-year, 1 in 100-year and 1 in 1,000-year rainfall events.

- 4.12 As with fluvial flood risk, it can be seen that the areas of flood risk are limited to the outline of The Mill Pond and do not extend eastwards towards the location of The Lake House (although the property is not shown on this mapping).
- 4.13 The pattern of flooding seen in Figure 4.1 reflects the fact that surface water flood risk would not impact the proposed development. There are no flow paths through the site and any surface water flood risks

associated with The Mill Pond cannot extend towards the proposed development due to the significant increases in elevation that are present on the west side of The Mill Pond.

- 4.14 Consequently, The Lake House and the proposed development are not at risk of surface water flooding.

Groundwater Susceptibility

- 4.15 There are no flood risk maps for groundwater, as stated by the Environment Agency in their 2011 guidance note 'flooding from groundwater'. Mapping products currently available only show areas where the geological and hydrogeological conditions *may* combine to cause groundwater flooding, but they should not be considered as groundwater flood risk maps. They only show *susceptibility* to groundwater flooding.

- 4.16 There are several mapping products that depict areas that may be susceptible to groundwater flooding, but they are not comparable in detail to the risk maps developed for fluvial, tidal and surface water, such as those used by practitioners and risk management authorities to support planning decisions. The mapping does not show the likelihood of groundwater flooding occurring and can only be considered as a hazard, but not a risk-based dataset.

- 4.17 As such, the mapping products can be viewed as indicative at best and should only be used as a prompt to review site-based information to determine whether groundwater is a risk factor that should be considered. Indeed, the Environment Agency state that:

"The susceptibility data should not be used on its own to make planning decisions at any scale and, in particular, should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its own to indicate risk of groundwater flooding."

- 4.18 To investigate groundwater flooding susceptibility this FRA will review groundwater flooding susceptibility mapping made available in an Envirocheck Flood Screening Report, which can be seen in [Appendix G](#). There are three different forms of groundwater susceptibility mapping, which are discussed in turn, below.

BGS Geological Indicators of Flooding

- 4.19 The BGS Geological Indicators of Flooding map shows that the site is not within an area considered to have any geological indicators of groundwater flooding.

BGS Groundwater Flooding Susceptibility

- 4.20 The BGS Groundwater Flooding Susceptibility map shows that the site is in an area with limited potential for groundwater flooding to occur.

Geosmart Information Groundwater Flood Map

- 4.21 The Geosmart Information Groundwater Flood Map places the site in an area of 'negligible' risk.

Groundwater Flooding Susceptibility Summary

- 4.22 The available groundwater flooding susceptibility mapping clearly places The Lake House in an area where there is very low risk of groundwater flooding. Therefore, the proposed development is not susceptible to groundwater flooding.

Flooding from Infrastructure Failure

- 4.23 Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or because of a reduction in capacity due to collapse, siltation, blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.

- 4.24 Typically, sewer systems are constructed to accommodate rainstorms with a 30-year return period or less, depending on their age. Consequently, rainstorm events greater than 1 in 30-years would be expected to result in surcharging of some parts of the sewer system. In fact, due to most gullies being poorly maintained and often partially blocked with silt, leaves and other debris, their capacity is often estimated to be closer to the 1 in 10-year storm.
- 4.25 The Lake House is in a rural area where there is no drainage infrastructure that could fail and cause flooding to the proposed development. The property will have new drainage infrastructure installed as part of the development and this will be designed to accord with current regulations and, therefore, will not be a source of potential future flooding for the development.

Flooding from Artificial sources

- 4.26 The EA provides a map showing the maximum potential flood extent should all reservoirs with a capacity of greater than 25,000 cubic metres fail and release the water they hold.
- 4.27 The Mill Pond is an impounded body of water, but its failure would not cause flooding to the site due to the site's position above the water level and upstream of the impounding structure.
- 4.28 This is reflected in the EA's mapping, an excerpt of which is below in Figure 4.2, and shows that the site is not in an area that is considered to be at risk of reservoir flooding.

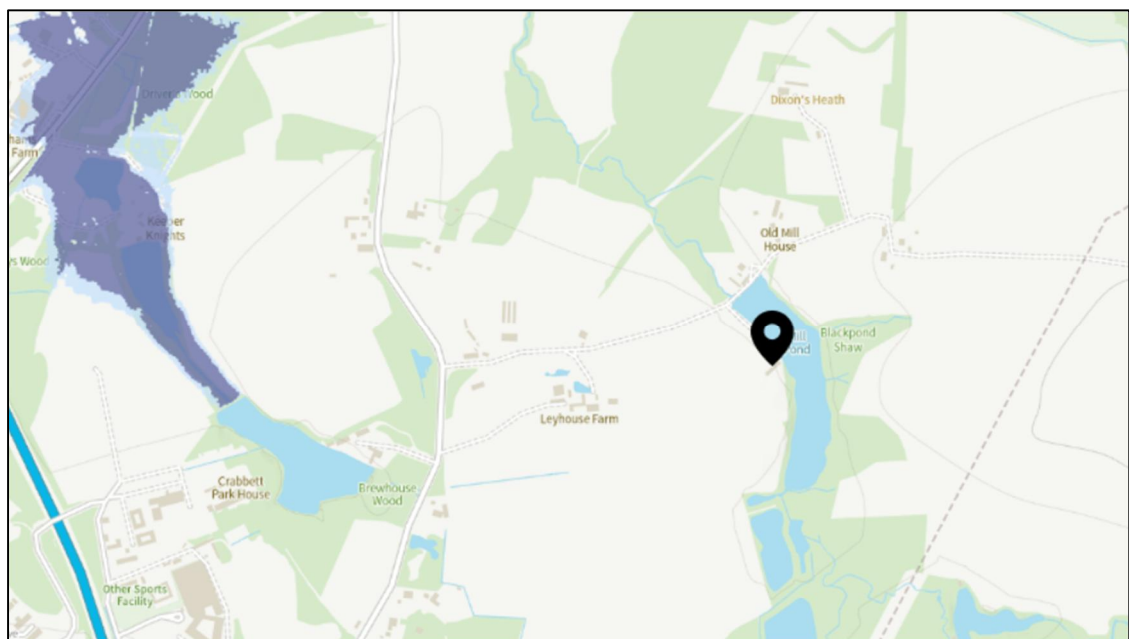


Figure 4.2: Reservoir Flood Risk

- 4.29 There are no canals in the local area to create flood risk.

Historic Flooding

- 4.30 The Envirocheck Flood Screening Report includes the EA's Historic Flood Map, and this is presented in [Appendix H](#). It shows that there are no records of historic flooding, from any source, on site or within the local area.

5.0 Future Flood Risk & Climate Change

- 5.1 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

- 5.2 The NPPF provides guidance on how peak river flows may increase in the future due to climate change, which is dependant on:

- „ The river catchment the site is in;
- „ The lifespan of the development (in 'epochs', which are 2020's, 2050's and 2080's); and
- „ What level of risk it is currently exposed to.

- 5.3 Rowfant lies within the 'Mole Management Catchment' and Table 5.1, below, shows the peak river flow allowances that should be considered:

	Central	Higher	Upper
2020s	11%	16%	27%
2050s	6%	12%	26%
2080s	12%	20%	40%

Table 5.1 – Peak River Flow Allowances from NPPF

- 5.4 More vulnerable development in Flood Zone 1 should used the 'Central' climate change allowance to assess future peak river flows. For the 2080's epoch (which covers the lifetime of the development) and the central climate change allowance, there is predicted to be a 12% increase in peak river flows.
- 5.5 With reference to the discussion of fluvial flood risk earlier in this report, The Lake House is within Flood Zone 1 and vertically elevated above The Mill Pond, the levels of which are managed by a weir and sluice gate, and ultimately, the crest level of the impounding structure.
- 5.6 Therefore, an increase in peak river flows is irrelevant to future flood risk on the site because water levels can never rise to a level that would threaten the proposed development, regardless of fluvial inputs, because the output structures and dam on The Mill Pond would maintain a maximum water level of approximately 79.0 mAOD – well below the minimum development level of 80.4 – 80.5 mAOD.

Peak Rainfall Intensity

- 5.7 With climate change it is becoming more common to see rainfall events of higher intensity, particularly in the southeast of England. Increased rainfall intensity affects river levels and drainage systems, with the result being an increase in surface water flooding and sewerage surcharge.
- 5.8 The NPPF states that for developments with a lifetime beyond 2100, the 'Upper End' climate change allowances should be used and both the 1 in 30-year and 1 in 100-year rainfall events considered. For the Rowfant Area, this means that the anticipated peak rainfall increases due to climate change are between 35% and 40% in the 1 in 30-year and 1 in 100-year rainfall events, respectively.
- 5.9 The Lake House is at very low risk of surface water flooding. The EA RoFSW dataset (Figure 4.1) shows that the site is not at risk of pluvial flooding up to and including the 1 in 1,000-year rainfall event. As such, future rainfall events of higher intensity are not anticipated to affect the proposed development.

6.0 Summary of Flood Risk

6.1 Table 6.1, below, summarises the level of flood risk at The Lake House from all sources.

Table 6.1: Summary of Flood Risk

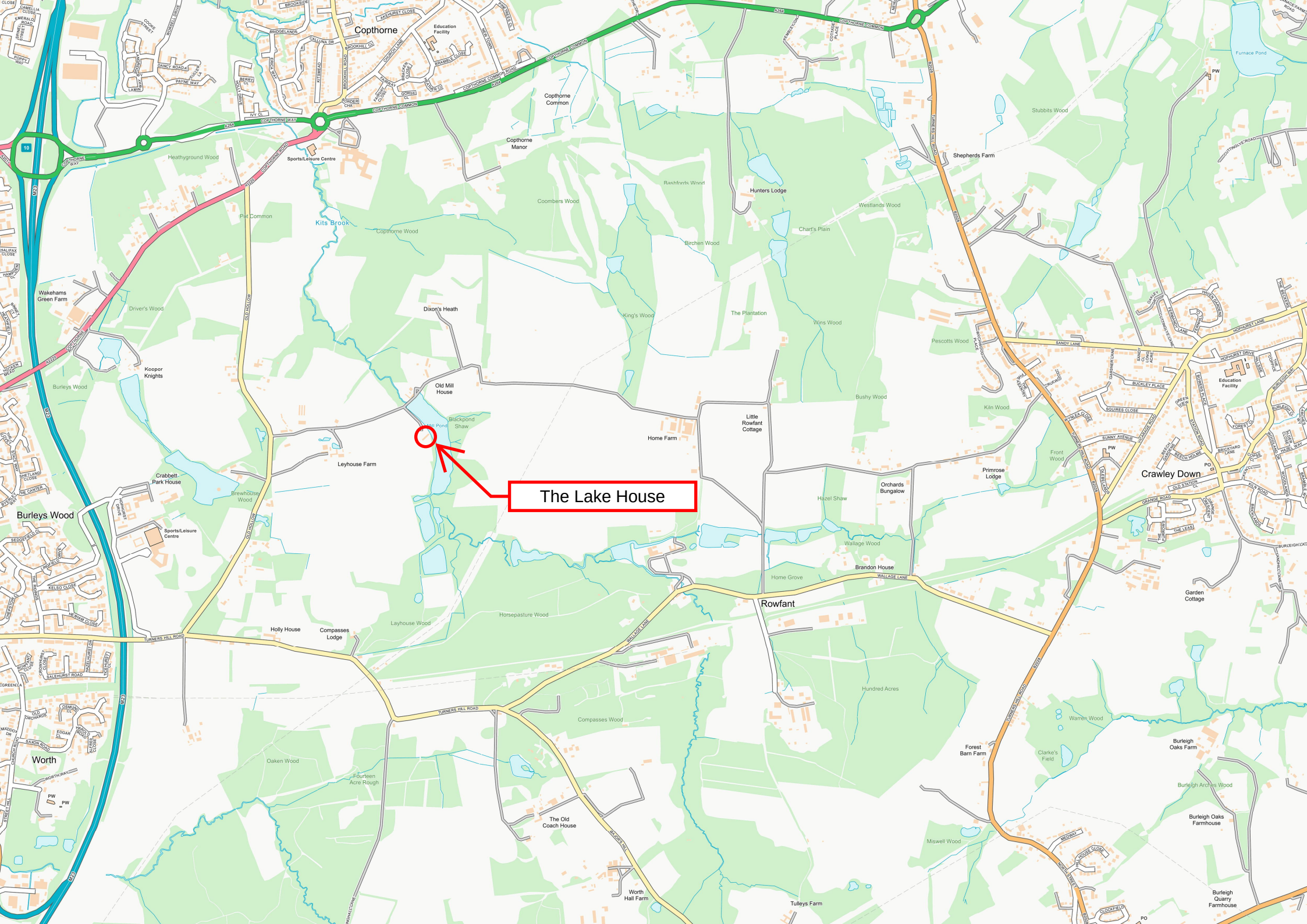
Flood Source	Risk Level				Comment
	High	Medium	Low	Very Low	
Fluvial				X	Flood Zone 1 (present day and in the future)
Tidal				X	Not within a tidal flood risk area
Groundwater				X	Not in an area susceptible to groundwater emergence
Surface Water				X	Very Low Risk of surface water flooding
Canals				X	There are no canals in the vicinity
Reservoirs				X	The Reservoir Flood Risk Map places the site outside a maximum extent of flooding
Infrastructure Failure				X	Independent rural location means that flooding from infrastructure failure is not possible.
Increase due to Climate Change				X	Future fluvial flood risk has been discussed and will not increase flood risk to the development.

7.0 Summary and Conclusion

- 7.1 This Flood Risk Assessment (FRA) and Drainage Strategy has been produced by Motion on behalf of their client, Planit Consulting. It supports the planning application for a replacement dwelling on the site of The Lake House, Old Hollow, Rowfant, Crawley.
- 7.2 The FRA has reviewed flood risk from all sources, inclusive of climate change. While there are shown to be sources of flood risk close to The Lake House, these are associated with The Mill Pond, which the property sits adjacent to.
- 7.3 This FRA has clearly demonstrated through topographical information and the elevations at which the proposed development will sit that all buildings and residential accommodation will be well above the maximum achievable water level of 79.0 mAOD within The Mill Pond. This is the maximum level achievable because it is the crest level of the impounding structure, so any increase in water levels above this would weir over the dam and water levels in The Mill Pond would not rise.
- 7.4 The lowest floor level will be 80.4 to 80.5 mAOD, thus 1.4m – 1.5m vertically above the maximum achievable water level in The Mill Pond. Development at this level will include a garage and a garden room/store, thus a low vulnerability use. The lowest level at which non-sleeping residential accommodation will be located is 82.5 mAOD and the lowest level at which sleeping accommodation will be located is 83.4 mAOD, thus 3.5m and 4.4m, respectively, above the maximum water level achievable in The Mill Pond.
- 7.5 This demonstrates that the proposed development is currently within fluvial Flood Zone 1 and will continue to be so for the lifetime of the development.
- 7.6 Surface water flood risk and other 'local' sources of flood risk are low on site.
- 7.7 Therefore, the proposed replacement dwelling is appropriate in this location and flood risk should not be an impediment to the progress of the proposed development.

Appendix A

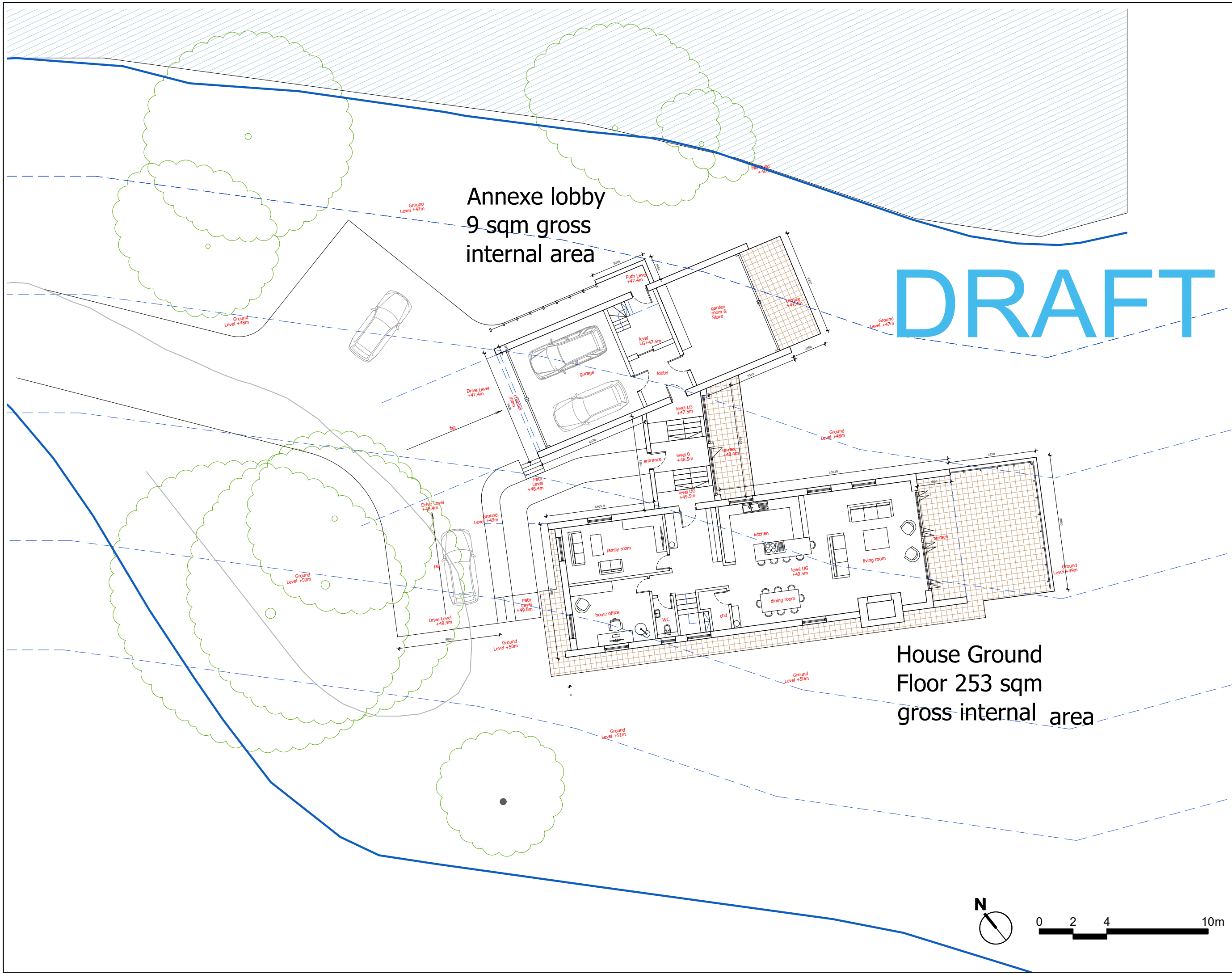
Site Location Plan



The Lake House

Appendix B

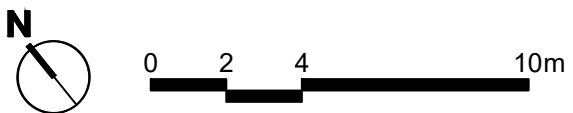
Proposed Development Plans



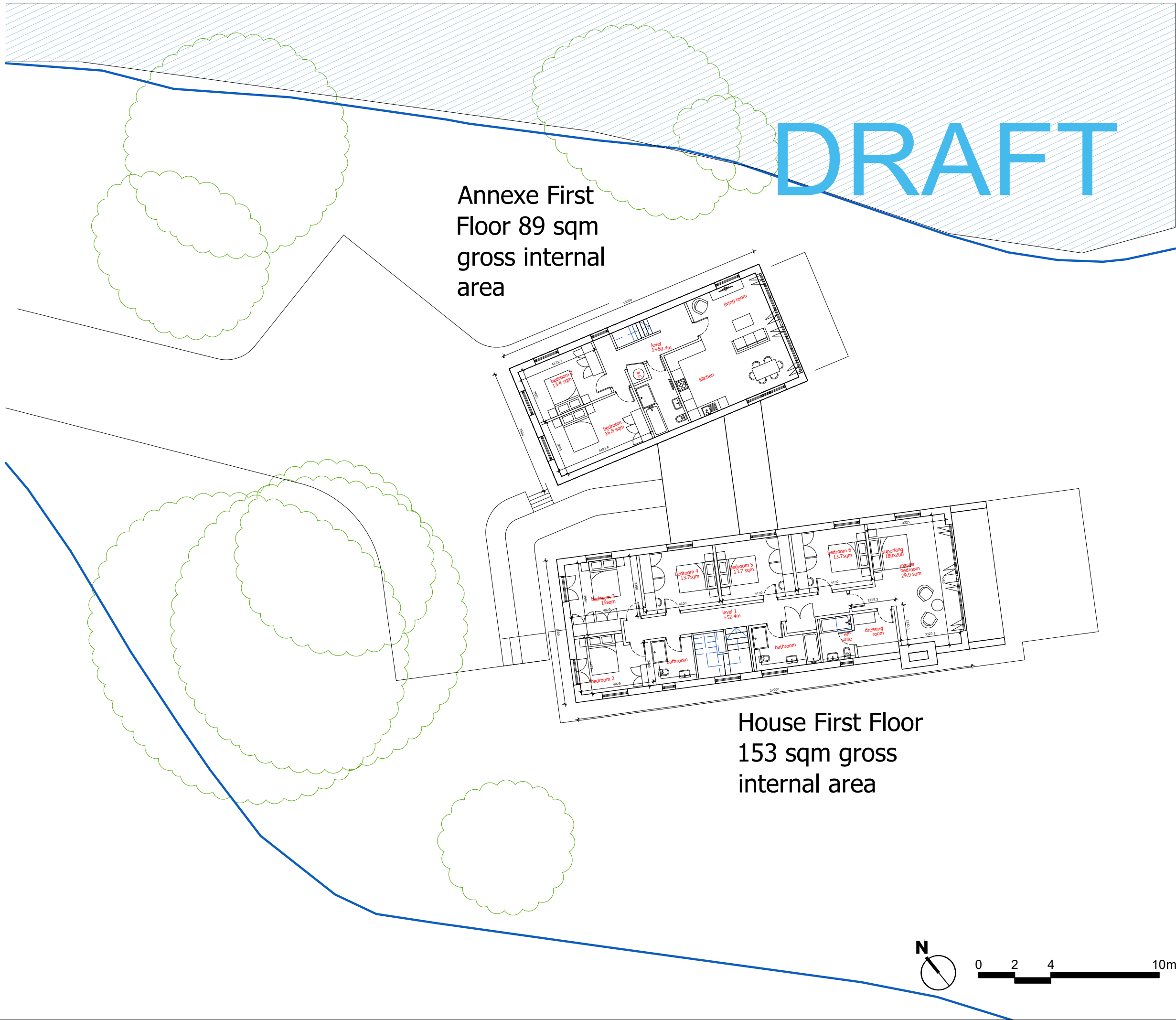
Annexe lobby
9 sqm gross
internal area

DRAFT

House Ground
Floor 253 sqm
gross internal area



NOTES: 1. THESE DRAWINGS ARE FOR PLANNING PURPOSES ONLY 2. BUILDING CONTRACTORS SHOULD NOT SCALE FROM THESE DRAWINGS			
BY	DATE	DESCRIPTION	REV
PLANIT CONSULTING TOWN PLANNING & PROPERTY ADVISERS T. 01483 415753 E. info@planitconsulting.co.uk www.planitconsulting.co.uk			
CLIENT: Mr P. Williams			
PROJECT: The Lake House, Rowfant			
DRAWING TITLE: Proposed Ground Floor Plan			
STATUS: Draft For Information			
SCALE: 1:200 @ A3		DATE: 07/06/2024	
DRAWN BY: AC	DRAWING NUMBER:	REVISION: -	



Annexe First Floor 89 sqm gross internal area

House First Floor 153 sqm gross internal area



NOTES:

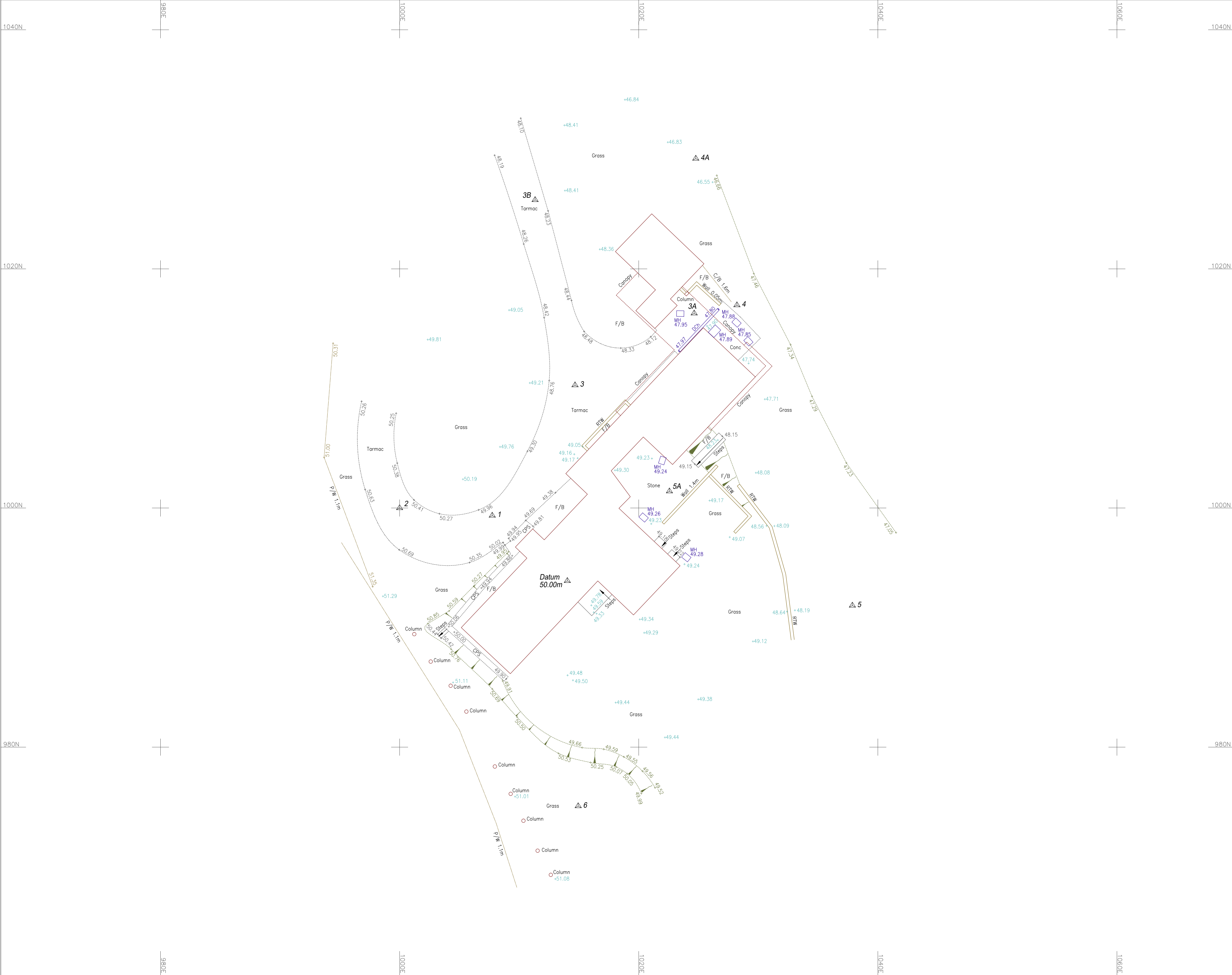
1. THESE DRAWINGS ARE FOR PLANNING PURPOSES ONLY

2. BUILDING CONTRACTORS SHOULD NOT SCALE FROM THESE DRAWINGS

BY	DATE	DESCRIPTION	REV
PLANIT CONSULTING TOWN PLANNING & PROPERTY ADVISERS T. 01483 415753 E. info@planitconsulting.co.uk www.planitconsulting.co.uk			
CLIENT: Mr P. Williams			
PROJECT: The Lake House, Rowfant			
DRAWING TITLE: Proposed First Floor Plan			
STATUS: Draft For Information			
SCALE: 1:200 @ A3		DATE: 07/06/2024	
DRAWN BY: AC		DRAWING NUMBER:	REVISION: -

Appendix C

Existing Site Survey Plan



Important Information:

All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Survey Legend

FENCES		
BARBED WIRE FENCE	BW	Trees
CORRUGATED IRON FENCE	CI	
CLOSE BOARD FENCE	CB	
CHESTNUT PALING FENCE	CIP	Hedges
HIGH RAILING FENCE	HR	
POST AND CHAIN FENCE	PC	
POST AND RAIL FENCE	PR	
POST AND WIRE FENCE	PWF	
CHAIN LINK FENCE	CL	
LARCH LAP FENCE	LL	
WETWOOD FENCE	WM	
WIRE MESH FENCE	WM	
ABBREVIATIONS		
BOLLARD	Bu	MARKER
BRITISH TELECOM IC	BT	NOTICE BOARD
CONCRETE PAVING SLABS	CPS	PARKING METER
COVER LEVEL	CL	ROAD NAME PLATE
DROP KERB	DK	ROAD SIGN
ELECTRIC INSPECTION COVER	EC	RODDING EYE
ELECTRICITY POLE	EP	RETAINING WALL
FIRE HYDRANT	FH	RANWATER PIPE
FLOWER BED	FB	STOP VALVE
FOOTPATH	FP	TELEGRAPH POLE
GAS VALVE	GV	TELEPHONE CALL BOX
GULLY	Gy	TRAFFIC LIGHT
INSPECTION COVER	IC	UNABLE TO LIFT
PIPE INVERT LEVEL	IL	UNKNOWN
SEWER OUTLET	SO	VENT PIPE
MANHOLE	MH	WATER METER
THRESHOLD	TH	DIAMETER

North:

Grid: Local Grid

Levelling: Ground Floor Level as shown.
Value used 50.00m

Drawing Title:

Topographical Survey

Site Address:

The Lake House
Old Hollow
Rowfant
RH10 4TB

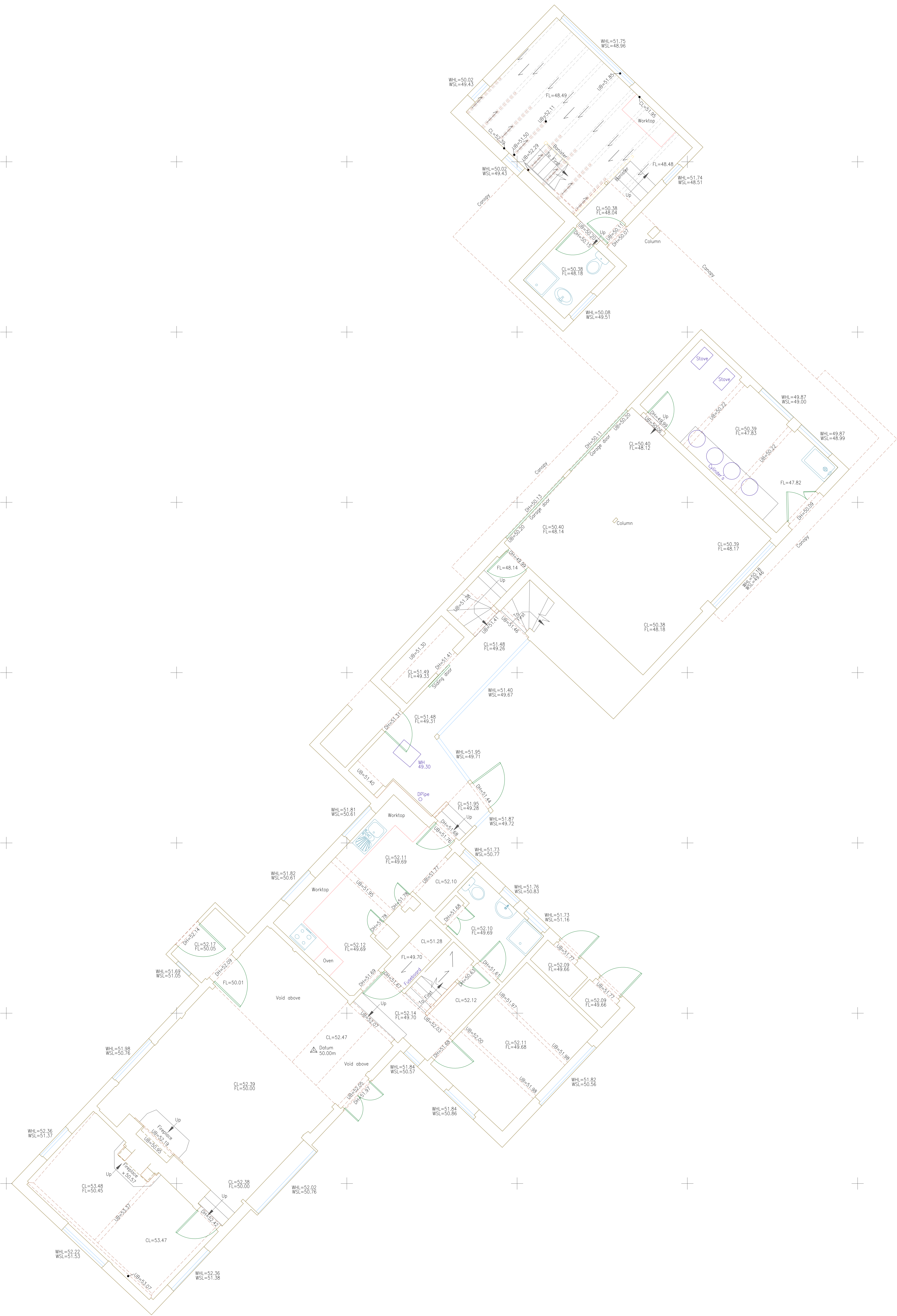
Client:

Mr Paul Williams

Surveyor	MM	Drawn By	WB	Verified By	AF	Date	27.02.24
CM No:	CM24232/T			Rev:			
Scale:	1:200m @ A2			Date: February 2024			

Cadmap Ltd
Unit 131 Dunsfold Park
Cranleigh
Surrey, GU8 8TB
T: 01483 429385
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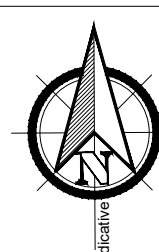
Important Information:
All information contained in this drawing
(including digital data) should be checked and
verified prior to any fabrication or construction.



Survey Legend

WSL= Window Sill Level
WHL= Window Head Level
CL= Ceiling Level
UB= Under Beam
FL= Floor Level
DH= Door Head

North:



Grid: Local Grid

Levelling: Ground Floor Level as shown.
Value used 50.00m

Drawing Title:
Ground Floor Plan

Site Address:
**The Lake House
Old Hollow
Rowfant
RH10 4TB**

Client:

Mr Paul Williams

Surveyor | MM | Drawn By | WB | Verified By | AF | Date | 27.02.24

CM No: CM24232GND

Rev:

Scale: 1:50m @ A0

Date:

February 2024



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Crowthorne
Reading RG4 7 7YH
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W: www.cadmap.co.uk



Important Information:
All information contained in this drawing
(including digital data) should be checked and
verified prior to any fabrication or construction.

Survey Legend

WSL= Window Sill Level
 WHL= Window Head Level
 CL= Ceiling Level
 UB= Under Beam
 FL= Floor Level
 DH= Door Head

North:



Grid:	Local Grid
Levelling:	Ground Floor Level as shown Value used 50.00m

Drawing Title:

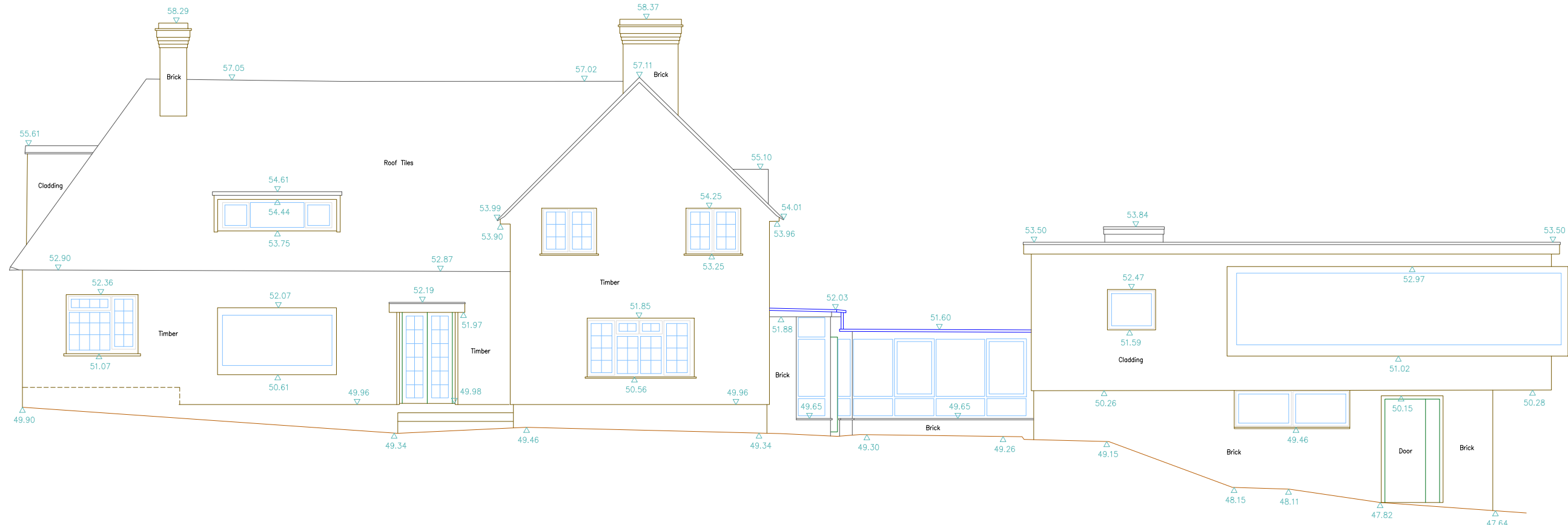
First Floor Plan

Site Address: The Lake House
Old Hollow
Rowfant
RH10 4TB

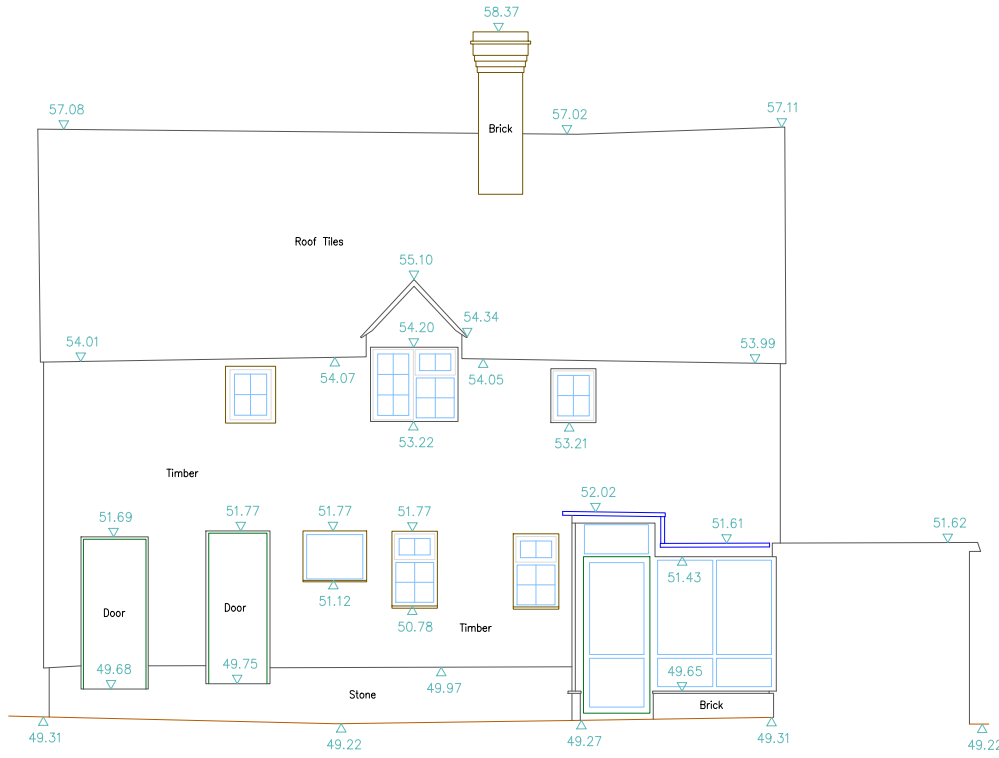
Client: Mr Paul Williams

Surveyor	MM	Drawn By	WB	Verified By	AF	Date	27.02.24
CM No:	CM24232/1ST			Rev:			
Scale:	1:50m @ A0			Date: February 2024			

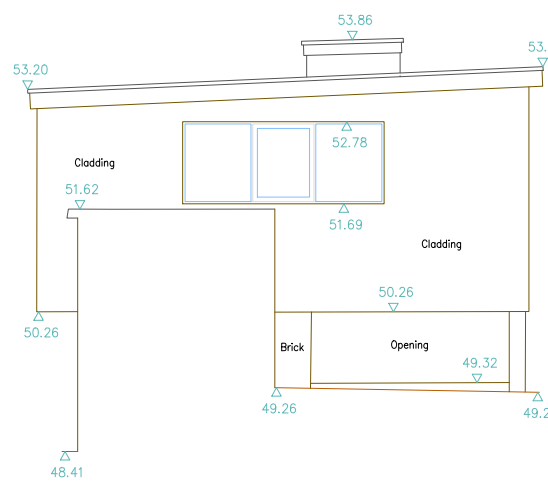




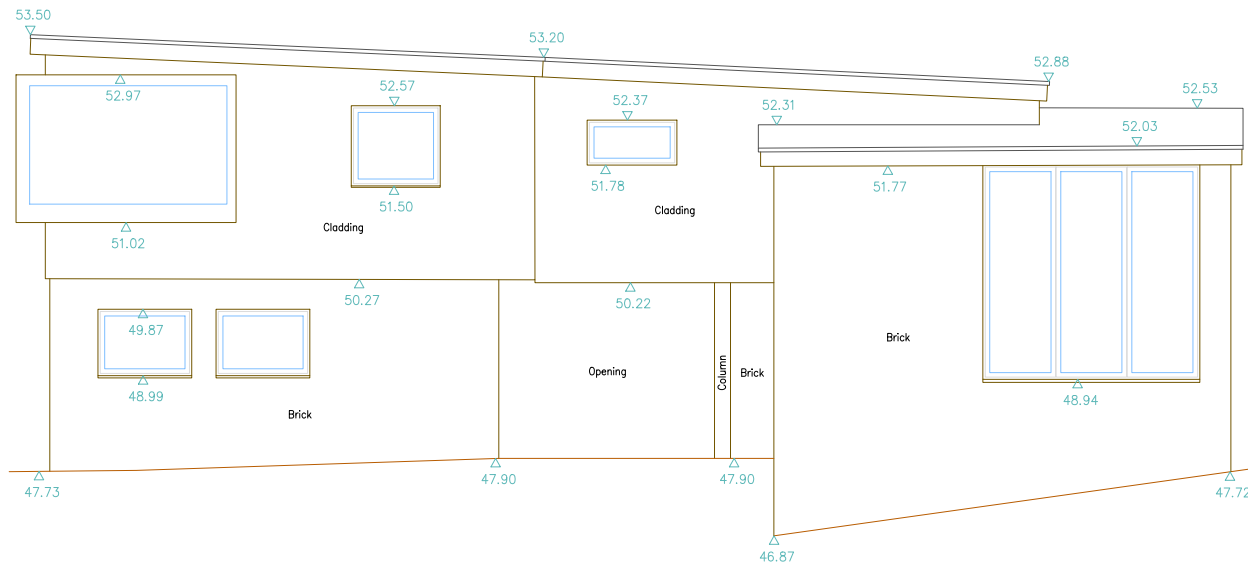
Elevation 1
Datum 46.00m



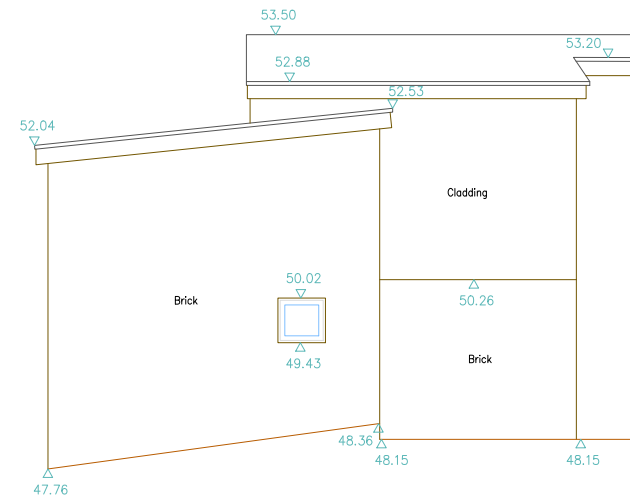
Elevation 2
Datum 46.00m



Elevation 3
Datum 46.00m



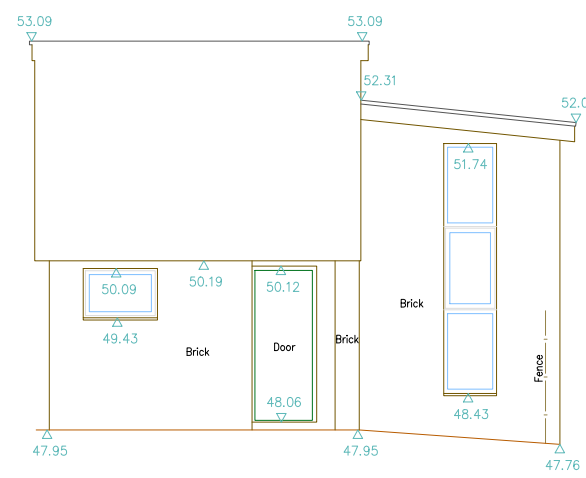
Elevation 4
Datum 46.00m



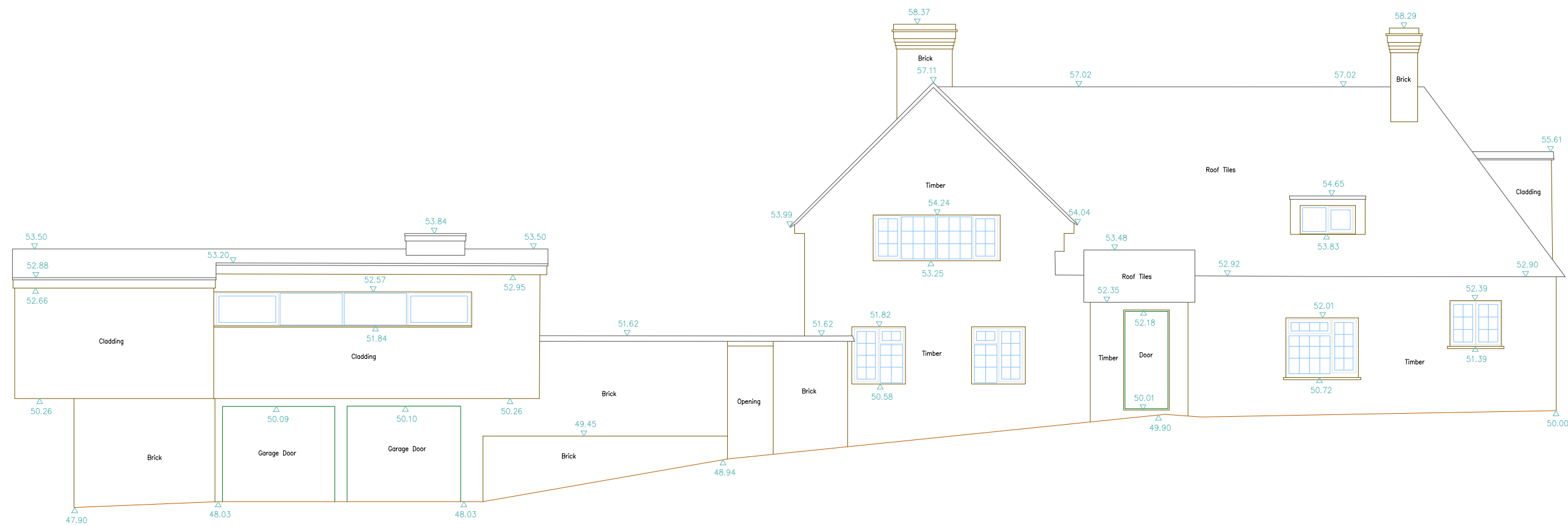
Elevation 5
Datum 46.00m



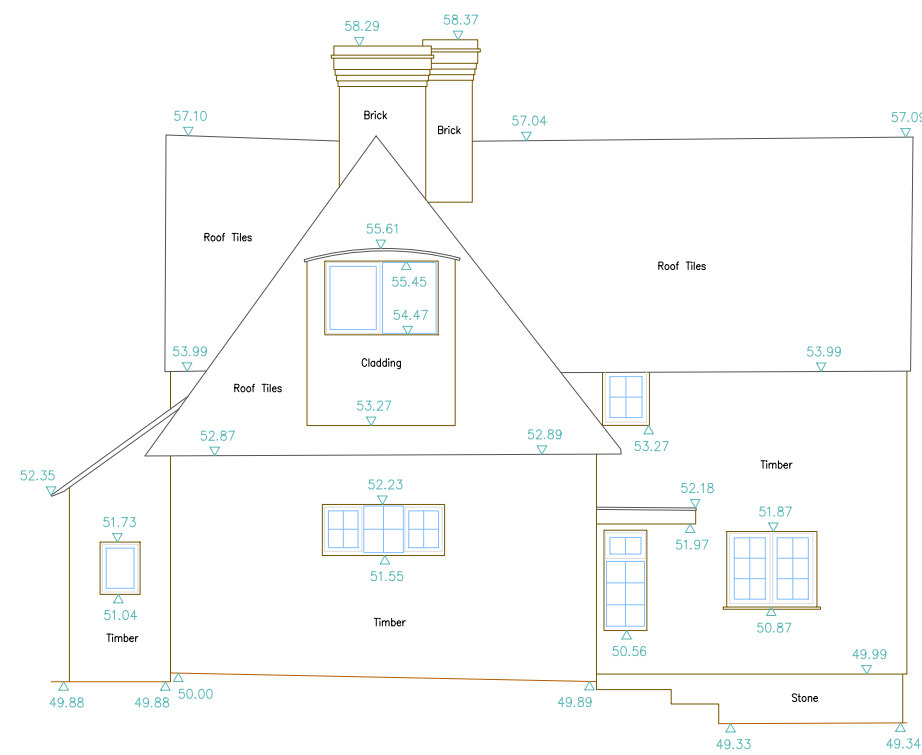
Elevation 6
Datum 46.00m



Elevation 7
Datum 46.00m



Elevation 8
Datum 46.00m

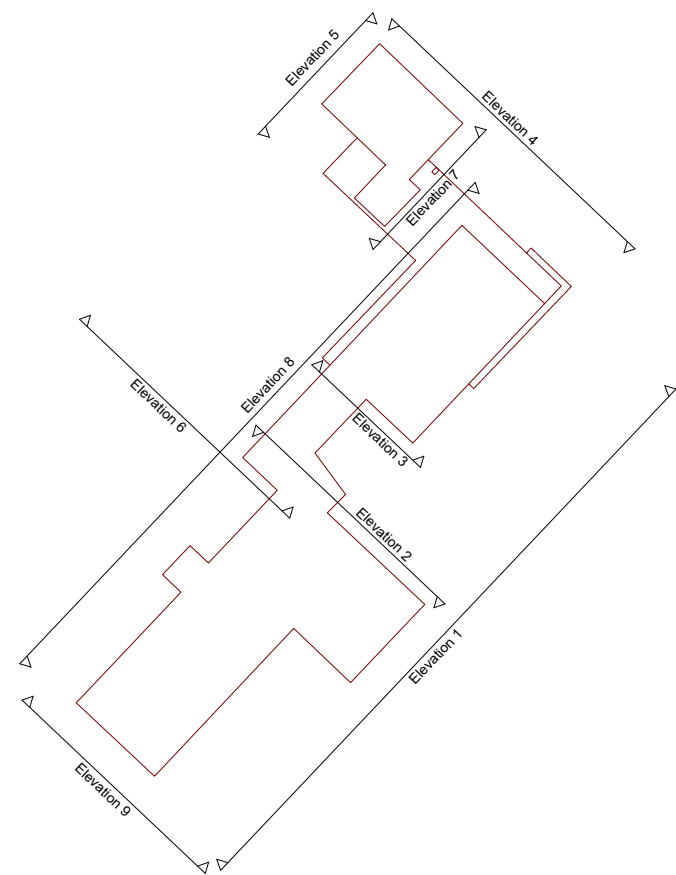


Elevation 9
Datum 46.00m

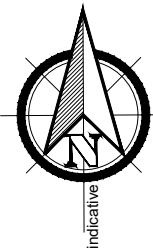
Important Information:

All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Elevation Location Plan
(Not to scale)



North:



Grid: Local Grid
Levelling: Ground Floor Level as shown.
Value used 50.00m

Drawing Title:
Building Elevations

Site Address:
The Lake House
Old Hollow
Rowfant
RH10 4TB

Client:
Mr Paul Williams

Surveyor: MM Drawn By: WB Verified By: AF Date: 27.02.24

CM No: CM/24232/ELE Rev:

Scale: 1:100m @ A1 Date: February 2024



Appendix D

Site Photos



Photo taken when Annexe was new (1960's) looking east past the studio flat towards The Mill Pond.



Photos taken when Annexe was new (1960's) showing the slope down to The Mill Pond



Photo of The Lake House from the north



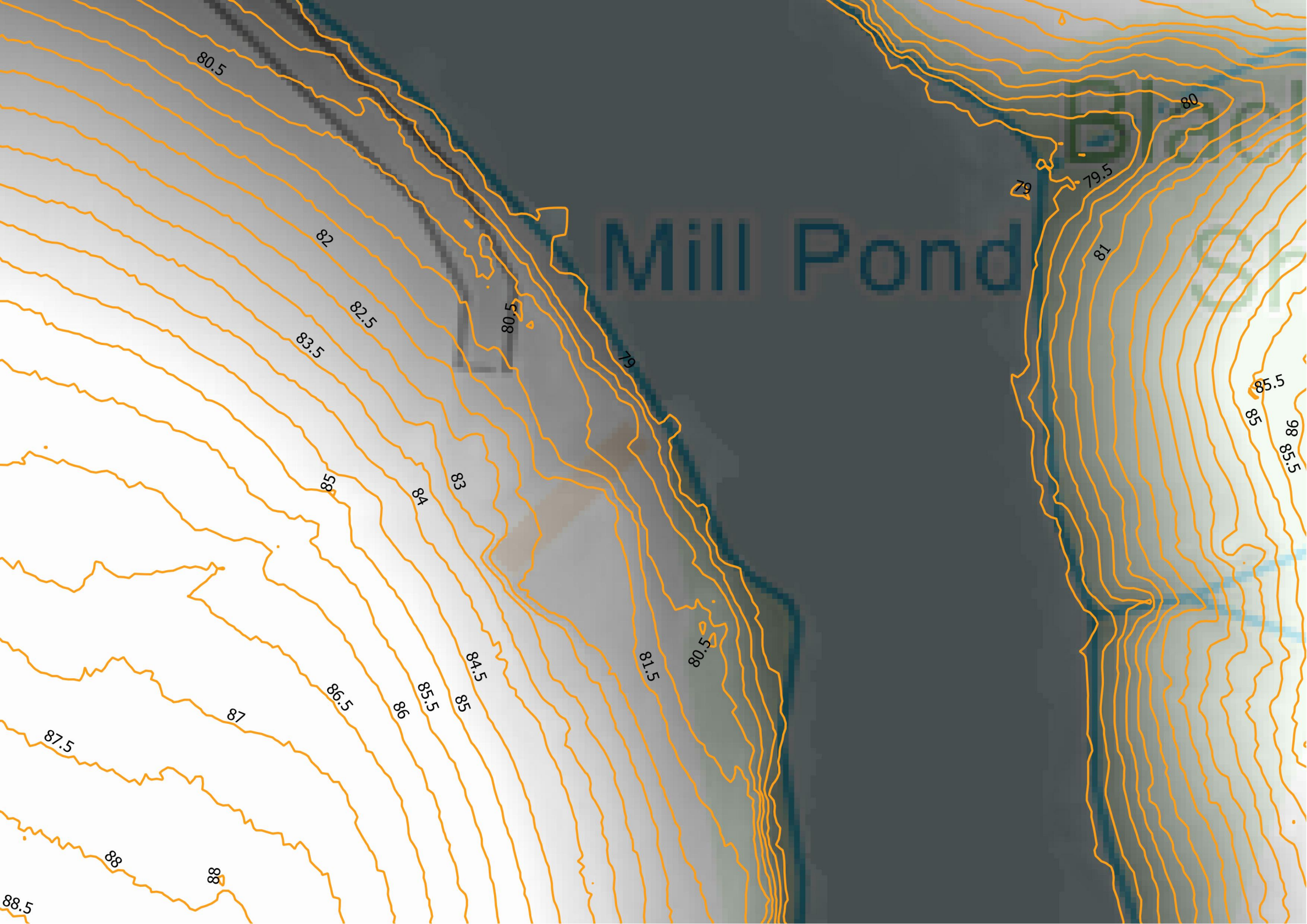
Photo of The Lake House from the south. Note how the land falls away to the east (towards The Mill Pond)

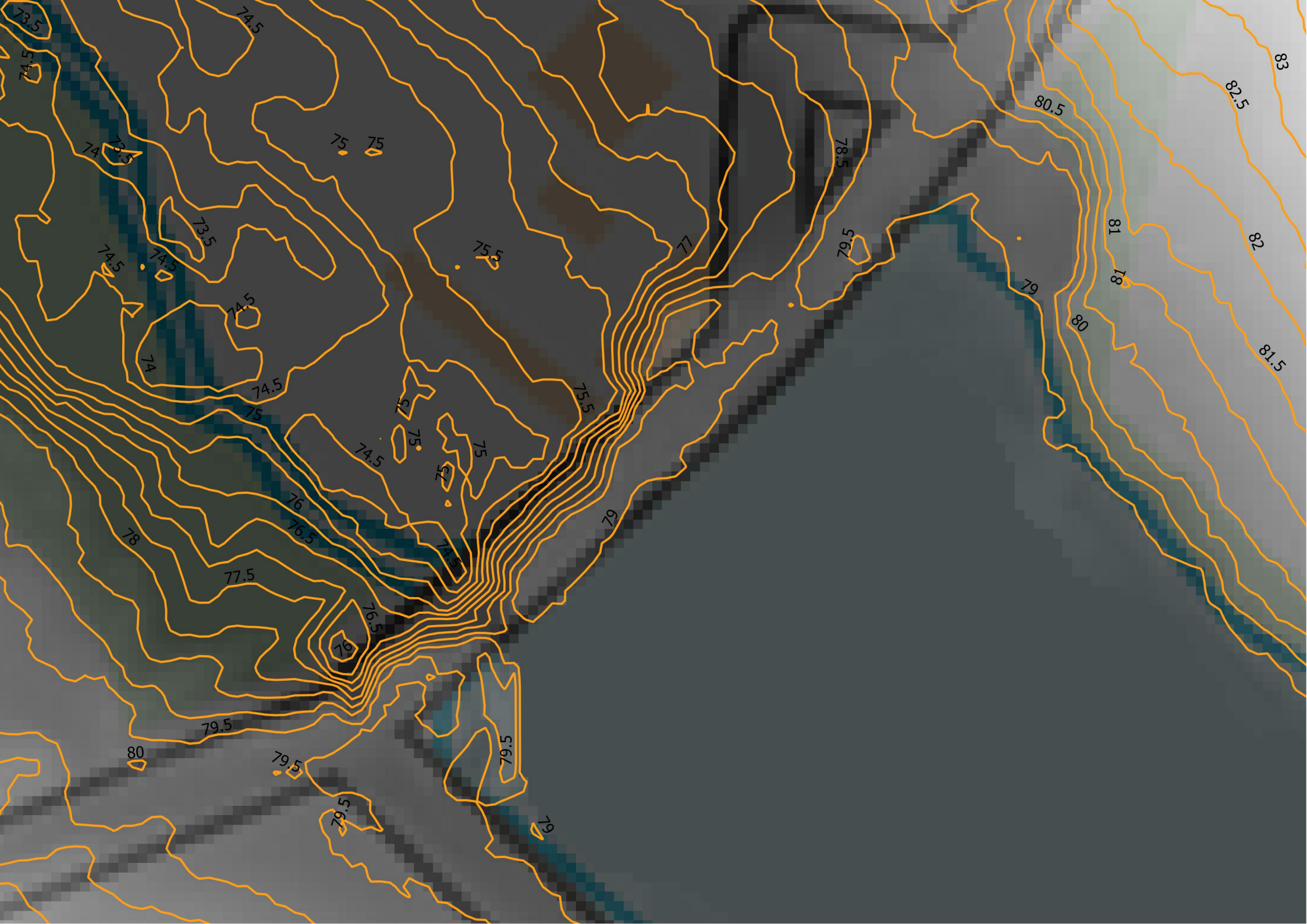


Photo of the Lake House looking southwest. Note the fall of the land away from the property and the difference in levels between the property and the lower parts of the gardens.

Appendix E

LiDAR Contours and Levels





Appendix F

EA Flood Map for Planning

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
531610/137585

Created
12 Apr 2024 11:15

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

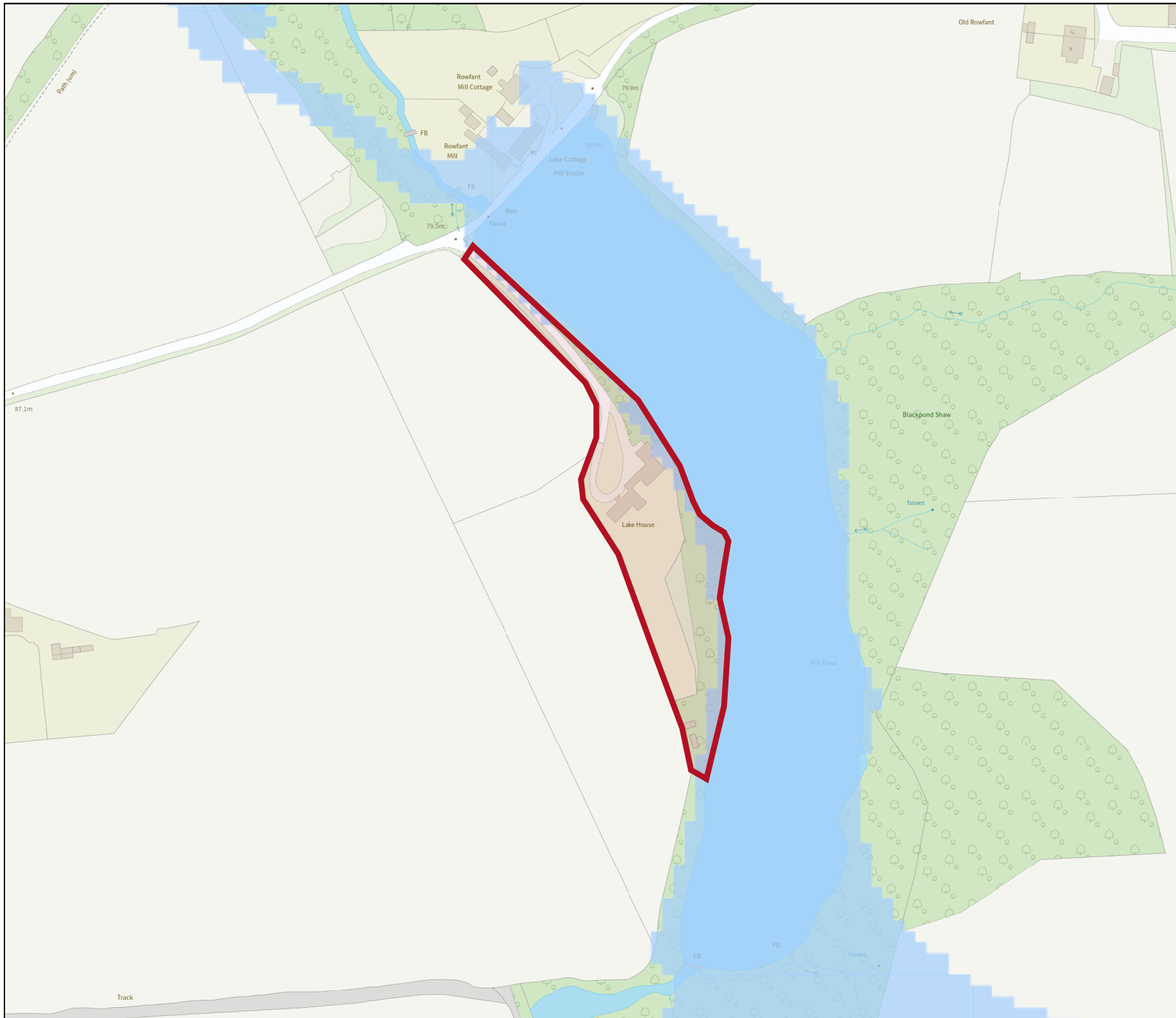
Notes

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.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
531610/137585

Scale
1:2500

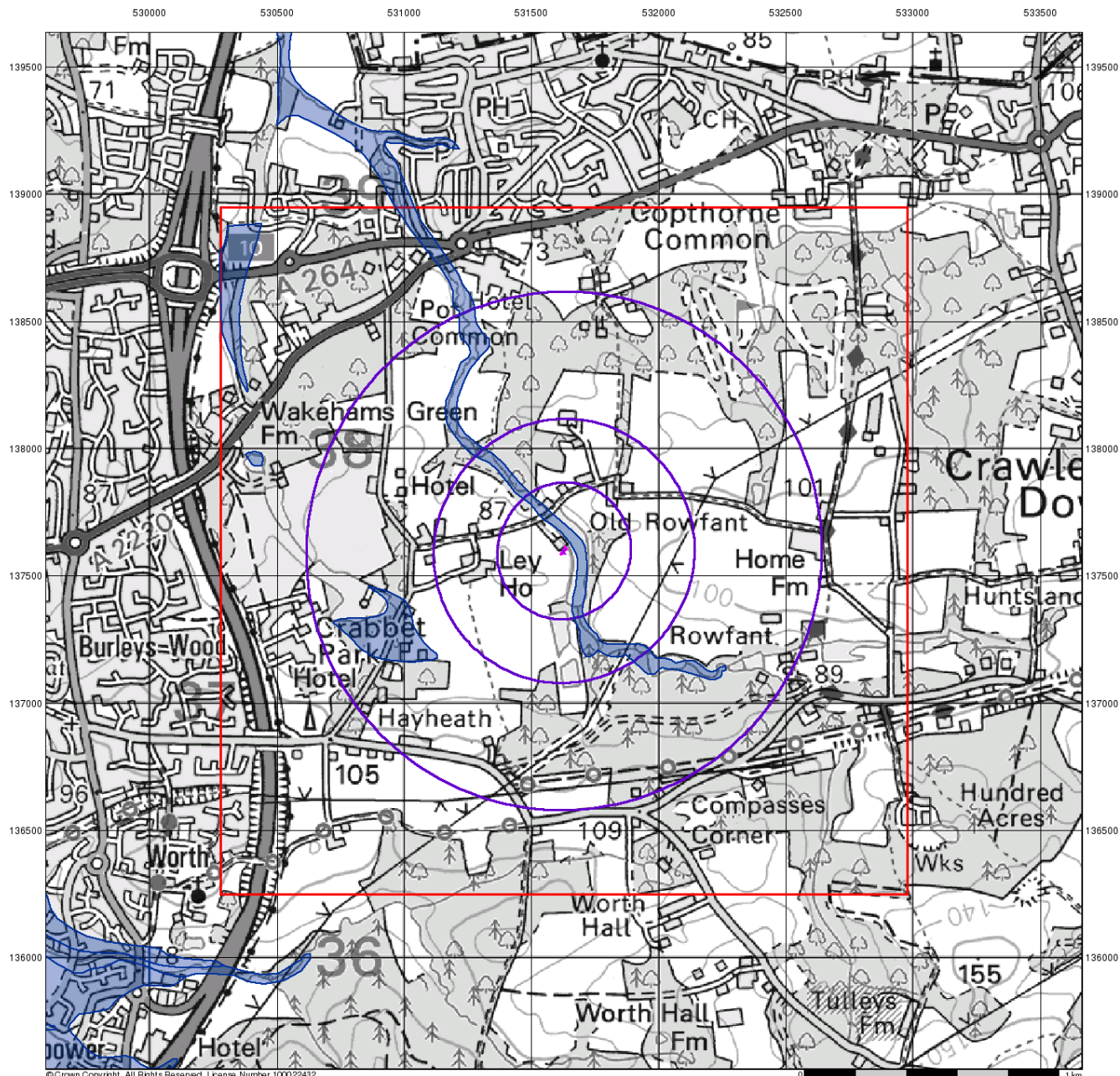
Created
12 Apr 2024 11:15

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area


0 20 40 60m

Appendix G

Groundwater Flooding Susceptibility Mapping



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motion

BGS Flood Data (1:50,000)

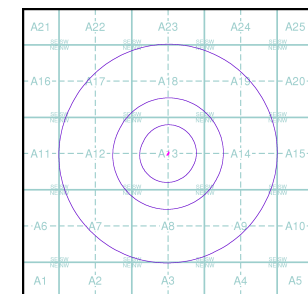
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

BGS Geological Indicators of Flooding

-  Coastal
-  Inland
-  Bodies of Water

BGS Flood Data Map - Slice A



Order Details

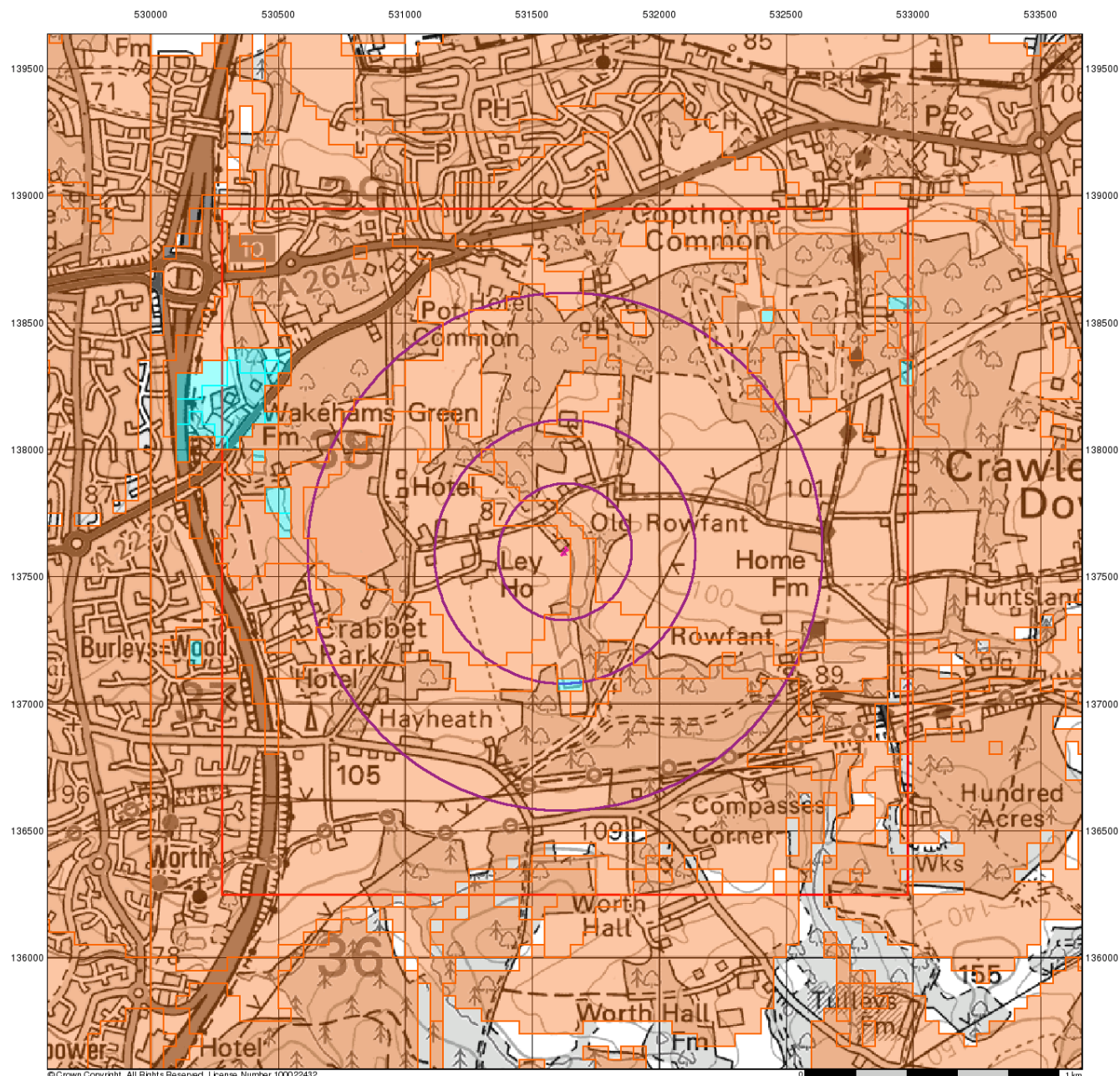
Order Number: 349687729_1_1
 Customer Ref: 1pcrow/2404040
 National Grid Reference: 531630, 137600
 Slice: A
 Site Area (Ha): 0.03
 Search Buffer (m): 1000

Site Details

Lake House, Rowfant, CRAWLEY, RH10 4TB

Landmark
 INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



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motion BGS Flood Data (1:50,000)

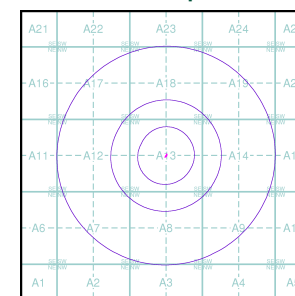
General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Slice
-  Map ID

BGS Groundwater Flooding Susceptibility

-  Potential for Groundwater Flooding to Occur at Surface
-  Potential for Groundwater Flooding of Property Situated Below Ground Level
-  Limited Potential for Groundwater Flooding to Occur

BGS Flood Data Map - Slice A



Order Details

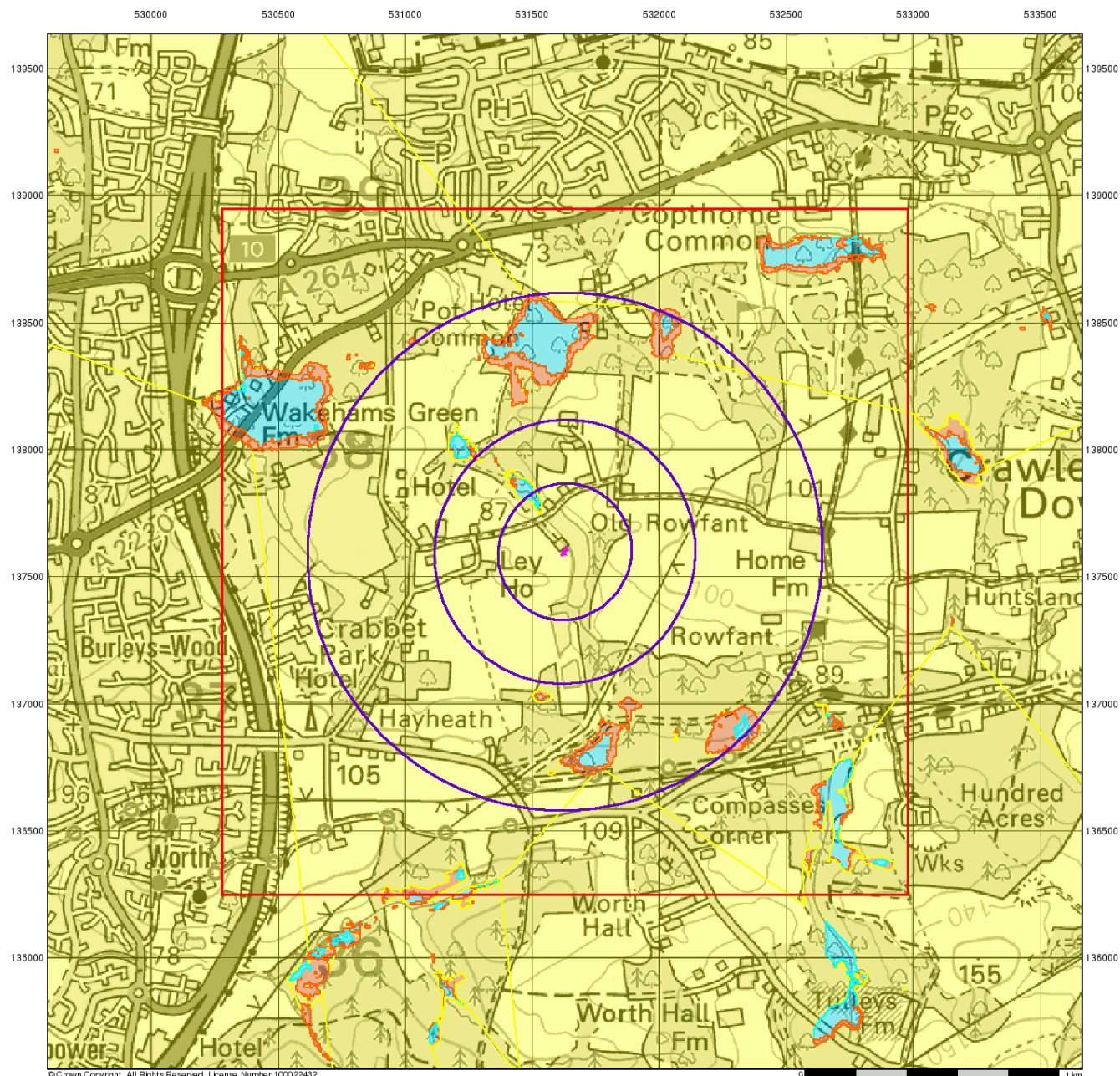
Order Number: 349687729_1_1
 Customer Ref: 1pcrow/2404040
 National Grid Reference: 531630, 137600
 Slice: A
 Site Area (Ha): 0.03
 Search Buffer (m): 1000

Site Details

Lake House, Rowfant, CRAWLEY, RH10 4TB

Landmark
 INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



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0 1 km



GeoSmart Information Groundwater Flood Map (1:50,000)

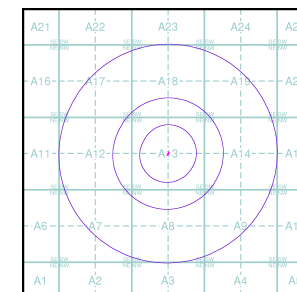
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice

GeoSmart Information Groundwater Flooding Risk

- High Risk
- Moderate Risk
- Low Risk
- Negligible Risk

GeoSmart Information Groundwater Flood Map - Slice A



Order Details

Order Number: 349687729_1_1
Customer Ref: 1pcrow/2404040
National Grid Reference: 531630, 137600
Slice: A
Site Area (Ha): 0.03
Search Buffer (m): 1000

Site Details

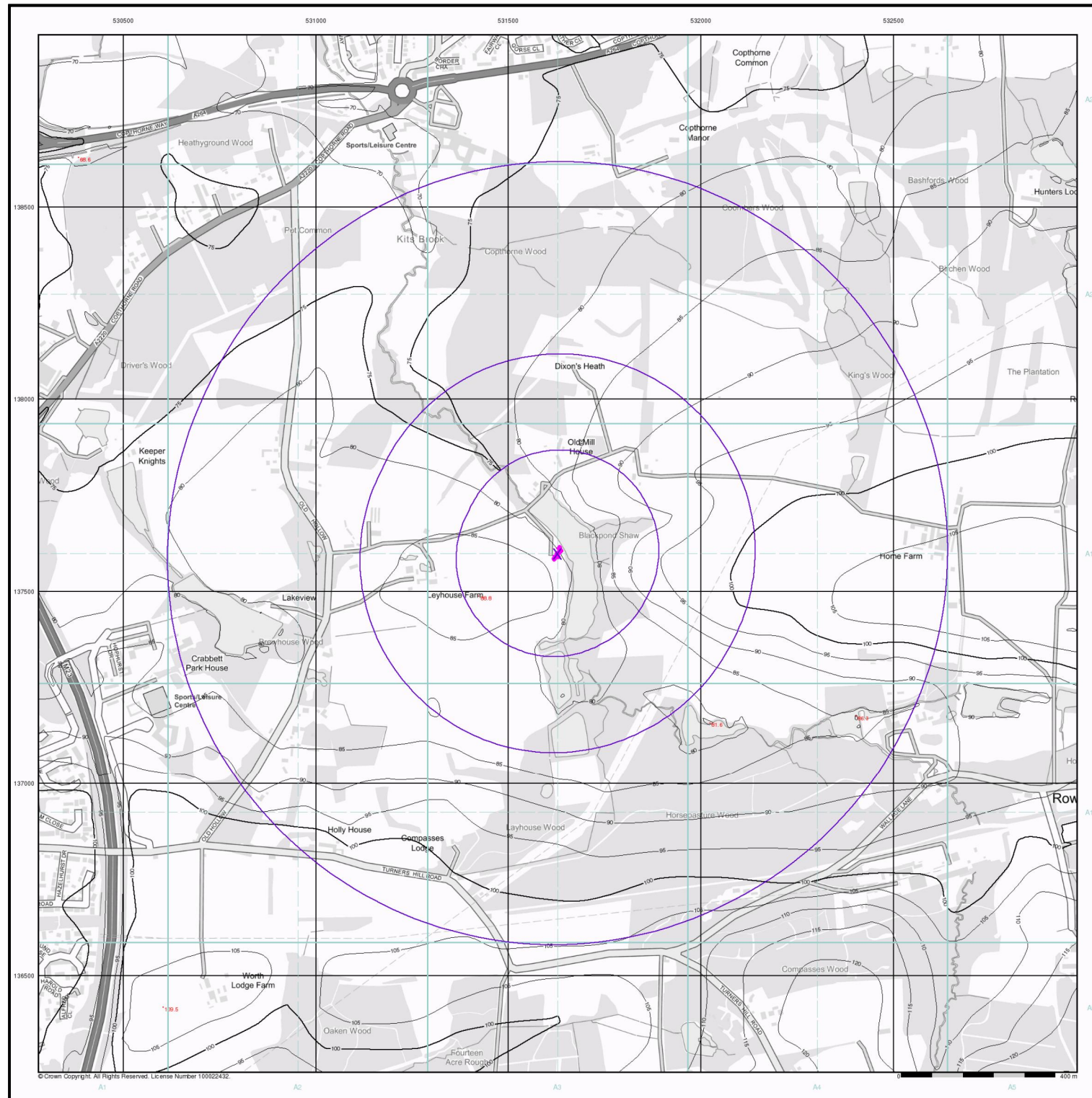
Lake House, Rowfant, CRAWLEY, RH10 4TB

Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Appendix H

Historic Flood Mapping



EA/NRW Historic Flood Map (1:10,000)

General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID

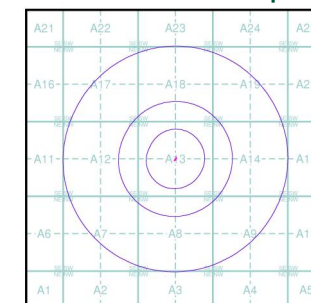
Historic Flood Events Data

- | | |
|--|--|
|  Channel Capacity Exceeded (no raised defences) |  Obstruction/Blockage - Culvert |
|  Channel Capacity Exceeded /Surface Water |  Obstruction/Blockage - Debris Screen |
|  Groundwater/High Water Table |  Operational Failure/ Breach of Defence |
|  Local Drainage/Surface Water |  Other |
|  Mechanical Failure |  Overtopping of Defences |
|  Obstruction/Blockage - Bridge |  Surface Water |
|  Obstruction/Blockage - Channel |  Unknown |
|  Historical Flood Liabilities | |

Contours (height in metres)

- Standard Contour  105  100  95
- Master Contour  105  100  95
- Spot Height *167.8
-  MLW Mean Low Water
-  MHW Mean High Water

EA/NRW Historic Flood Map - Slice A



Order Details

Order Number: 349687729_1_1
Customer Ref: 1pcrow/2404040
National Grid Reference: 531630, 137600
Slice: A
Site Area (Ha): 0.03
Search Buffer (m): 1000

Site Details

Lake House, Rowfant, CRAWLEY, RH10 4TB

Landmark
INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk